JULY 1942

Monthly LABOR Review

VOL. 55 • NO. 1

IN THIS ISSUE

Incentive-Wage Plans

Earnings in Eastern Airframe Industry

Mobilization of Industry and Labor in Great Britain

Productivity in Cotton-Goods Industry

UNITED STATES DEPARTMENT OF LABOR • BUREAU OF LABOR STATISTICS

The Monthly Labor Review is for sale by the Superintendent of Documents, Washington, D. C. Price, 30 cents a copy. Subscription price per year in the United States, Canada, and Mexico, $3.50; other countries, $4.75.

MONTHLY LABOR REVIEW

UNITED STATES DEPARTMENT OF LABOR • BUREAU OF LABOR STATISTICS

HUGH S. HANNA, EDITOR

CONTENTS

JULY 1942, Vol. 55, No. 1

Special articles: Page

Incentive-wage plans and collective bargaining 1
Earnings in the eastern airframe industry, April 1942 15
Mobilization of industry and labor in Great Britain 25

Wartime policies:

52-hour week as minimum in British industry 42
Utilization of Canadian manpower 42
Extension of unemployment insurance in Canada 45

Productivity of labor and industry:

Developments affecting productivity in cotton-goods industry 47
Productivity and technological changes in the chemicals industry, 1929–40 53

Employment conditions:

Migration to war-industry areas 58
Need for college-trained professional personnel 60

Industrial relations:

Collective bargaining in the chemical industry, May 1942 64
New shipbuilding stabilization agreement 85
Stabilization of wages in building industry 86

Industrial disputes:

Recent strikes 89
Activities of the United States Conciliation Service, May 1942 90
Emergency boards for adjustment of railroad labor disputes 92

Housing conditions:

New dwelling units in nonfarm areas, first quarter of 1942 94

Labor laws and court decisions:

Overtime provision of Public Contracts Act modified 101
Compulsory health-insurance law adopted by Rhode Island 101
Court decisions of interest to labor:
Wage and hour law coverage extended 102
Overtime-pay provisions under the wage and hour law 103

Wage and hour statistics:

Earnings in the textile-machinery industry, 1942 107
Earnings in the construction-machinery industry 117
Earnings in the case-goods furniture industry 124
Earnings in the smelting and refining of nonferrous metals, August 1941 129
Wage-rate changes in United States industries 147
Annual wages and salaries in the United States, 1939 149

Page

Cost of living:

Changes in living costs in large cities, May 15 and June 2, 1942 152

Labor turn-over:

Labor turn-over in manufacturing, April 1942 157

Building operations:

Summary of building construction in principal cities, May 1942 162

Retail prices:

Food prices in May and early June 1942 165

Wholesale prices:

Wholesale prices in May 1942 171

Trend of employment and unemployment:

Summary of reports of employment for May 1942 176
Detailed reports of employment, April 1942 180
Revised WPA estimates of unemployment 191

Recent publications of labor interest 192

Page
152
157
162
165
171
176
180
191
192

This Issue in Brief

Incentive-wage plans and collective bargaining.

Much of the disrepute of incentive systems among workers is due to past experience with rate cutting and "speed-up," which often accompanies incentive plans, as well as to the workers' general distrust of a purely "scientific" approach to their jobs. Unions have now obtained the right to participate in the actual rate-setting procedure in some plants, and in others the right to appeal particular rates or practices has been established. In many cases, when these controls have been effectively applied, the traditional opposition of organized labor has been modified to the point of at least passive acceptance of incentive methods of payment. Page 1.

Earnings in eastern airframe industry.

The early spring of 1942 saw eastern aircraft-frame plants approaching uniformity in payment for workers with short periods of service. Seven of the 8 establishments in this area now pay new employees 60 cents per hour and advance this rate at regular intervals until a 75-cent scale is attained after 3 or 4 months' service, while the remaining establishment pays its new workers 50 cents and advances them in 5-cent monthly stages until the hourly rate reaches 65 cents. No such standardization has been achieved with respect to employees having longer service. Page 15.

Collective bargaining in the chemical industry.

Between 35,000 and 40,000 workers in the chemical industry, representing about 35 percent of the total, were covered by union agreements in May 1942. Unionization on a fairly large scale in this industry is a development of recent years. Prior to 1937 there were no international unions primarily interested in organizing chemicals, although a few plant-bargaining units had been chartered as federal labor unions by the American Federation of Labor. In addition, particular groups of workers in some plants were members of craft unions. This article discusses the principal features of the agreements now in force. Page 64.

Productivity in cotton-goods industry.

Productivity in the cotton-goods industry increased more than 50 percent between 1929 and 1940, and this trend continued through the first quarter of 1941; thereafter there was no significant change. The ability of the industry to maintain intact and, if necessary, expand its work force will probably be the decisive factor in determining the direction productivity will take in the near future. Page 47.

Earnings in the construction-machinery industry.

The construction-machinery industry includes plants engaged primarily in the manufacture of heavy machinery used in the construction industries, including road building, excavating, and dredging. A survey by the Bureau of Labor Statistics of 41 such plants, constituting about one-fourth of the total, reflect the impact of the war economy. During 1941 the output of 14 plants consisted of products with high priority ratings, either on the basis of war contracts or for essential civilian use. During the early part of 1942, 5 plants reported their entire output as closely connected with the war effort; conversion of at least a portion of the facilities of these plants was involved. The earnings of workers in the industry are analyzed in an article on page 117.

Migration of workers to war industry areas.

The migratory movement of workers in search of defense jobs during the past 2 years has not involved the movement of workers over great distances as did the depression migration of the past decade. A study of the extent of the former movement in 40 areas in different parts of the country shows that up to the early part of 1942 the movement had not been so great as had been popularly supposed. In more than half of the areas the migration rate amounted to less than 5 percent of the population of the cities into which the workers moved and in only 9 of the 40 cities was it over 10 percent. However, the rate of migration has been increasing in most areas and it is considered probable the movement will be intensified in the coming months. Defense migration, in general, has been strikingly successful from the standpoint of securing jobs, particularly among skilled manual workers, but serious economic and social problems are being created by the movement. Page 58.

MONTHLY LABOR REVIEW

FOR JULY 1942

INCENTIVE-WAGE PLANS AND COLLECTIVE BARGAINING

By Fred Joiner and Van Dusen Kennedy, *Bureau of Labor Statistics* [1]

FEW management policies have aroused as much opposition from workers as have incentive-wage systems. Workers have organized into trade-unions, gone on strike, adopted limitations on output, refused to work with "pace-setters," and tried many other methods to thwart or control incentive systems. Some unions have succeeded in eliminating or modifying incentive plans or preventing their introduction in individual plants. On the other hand, incentive methods prevail in some plants and industries that are working under well-established union agreements.

Much of the disrepute of incentive systems among workers is due to past experience with the rate cutting and the speed-up which often accompany incentive plans, as well as to the workers' general distrust of a purely "scientific" approach to their jobs. The application of collective bargaining to the determination of job standards and incentive rates in many cases has removed or alleviated grievances regarding incentive-wage methods. Many union agreements now contain specific prohibitions against rate cutting and other "unfair" time-study and incentive practices. Equally important, unions have obtained the right to participate in the actual rate-setting procedure in some plants, and in others the right to appeal any unfair incentive rate or practice through the grievance procedure. In many cases, where these controls have been effectively applied, the traditional opposition of organized labor has been modified to the point of at least passive acceptance of incentive methods of payment.

Development of Incentive Systems

An incentive-wage plan is a method of wage payment by which earnings fluctuate more or less in accordance with actual output, thus providing an immediate financial stimulant to workers to increase their efforts and output. The simplest form of such wages consists of straight piece rates, under which a fixed sum is paid for each article produced or worked on. Under the more complex incentive systems, a premium or bonus is allowed for production in excess of a previously determined standard. Incentive methods of wage payment are most easily applied when the work to be performed is highly repetitious,

[1] Prepared under the direction of Florence Peterson, chief of Industrial Relations Division.

with measurable units of output in which the speed and dexterity of the workman has an important effect on individual output.

In the early days of the factory system, piece work was common only in such industries as clothing and textile manufacture. These industries had their beginnings in home work, the worker being paid by the bundle for completed or semicompleted work. When the work was transferred to the factory, it was divided into many operations, making possible a further refinement in the incentive system. In the majority of early industrial establishments, however, piece work was not applied, because the tasks to be performed were extremely varied and required workers of higher all-round skill than was possessed by the more specialized piece worker.

With the introduction and expansion of factory production methods during the last half of the nineteenth century, skilled all-round jobs tended to be subdivided into many simple routine operations. This movement was accelerated and popularized by Frederick Taylor and other proponents of "scientific management," and led to the widespread introduction of incentive methods of wage payment. The use of time-study observations made possible a more exact measurement of work effort as a basis for incentive wages, as well as the elimination of inefficient working routines and self-imposed limits on production.

The introduction of complex incentive methods in conjunction with scientific-management techniques was a significant feature of the decade following the first World War. The rapid growth of such industries as the manufacture of automobiles and of electrical products, which were characterized by frequent style and model changes and continuous improvement in process and equipment, made necessary more detailed attention to production and efficiency problems. The time-study staff became a regular part of large factory operations. Many companies, both large and small, hired outside engineers, each of whom had developed his own particular type of incentive system.

The installation of some of these plans was accompanied by thorough reorganization of factory production along more efficient lines, with the result that the incentive system increased production and earnings without marked increases in work effort on the part of the employees. In other cases, incentive systems were imposed on existing inefficient management methods, and such savings as were made in labor cost resulted only from speeding up of the workers. No matter how thorough the original installation, inequities and confusion frequently developed after the engineer departed and the local management was left to carry on a complicated system, the essentials of which were only faintly understood in some cases.

Prevalence of Incentive-Wage Plans

There is considerable variation in the extent to which incentive-wage plans have been adopted in the different industries. This may be due to the nature of the work performed in the several industries or trades, to the diverse attitudes of management, or to the resistance or lack of resistance to incentive wages by the workers and their unions. The following indicates the prevalence of incentive wages among 26 selected industries.

Prevalence of Incentive Methods of Wage Payment Among Production Workers in Selected Industries [1]

Slight	*Moderate*	*Substantial*	*General*
Building	Aircraft	Electrical equipment	Clothing
Chemicals	Ammunition	Flat glass	Coal mining
Explosives	Automobile	Steel	Gloves
Nonferrous smelting and refining	Leather, luggage, belting, etc.	Textile	Hats and millinery
Printing and publishing	Machinery		Hosiery
	Machine tool		Rubber
	Meat packing		Shoes
	Nonferrous mining		
	Pulp and paper		
	Shipbuilding		

[1] Excludes clerks, maintenance and repairmen, inspectors, designers, packers, truckers, and other special workers in occupations incidental to production. The term "incentive methods of wage payment" includes piece work as well as the more complex premium or bonus systems.

The construction and printing industries are outstanding for the almost complete absence of incentive-wage systems, owing in large part to the opposition of the unions. Some paperhangers and lathers are on a piece-work basis, but most of the building-union constitutions forbid incentive methods of wage payment. Very few union printers work under incentive plans although a few of the large nonunion publishing houses pay on a piece-work basis. The International Typographical Union recently adopted a constitutional provision prohibiting its local unions from accepting piece-work or other incentive payments in their new agreements.

The Pacific coast shipbuilding agreement forbids piece-work or bonus-wage systems, but incentive-wage plans are prevalent in the large shipyards on the Atlantic coast. No piece work exists in Government navy yards or arsenals.[2] In aircraft manufacturing, incentive methods are confined to a few plants in the eastern area. The important west coast pulp and paper agreement prohibits incentive plans, although there are bonus plans in a few pulp and paper plants elsewhere.

Widespread changes in methods of wage payments have taken place in the automobile industry during recent years as a result of union pressure. Since 1934 many of the largest units in this industry have changed from piece-work, group-bonus, and other incentive plans to a straight hourly wage basis. Similar changes have taken place in many of the automobile-parts companies. At present less than a fifth of the workers in the motor-vehicle industry are paid on an incentive basis.

In contrast to the automobile industry is the flat-glass industry, where the union has effected a very substantial increase in the coverage of incentive plans and has actively favored the extension of group incentive methods. Whereas most unions are particularly opposed to group incentives, the glass workers' union has favored this form of incentive plan, because production methods peculiar to this industry seem to make such group arrangements desirable. The union's

[2] Since 1914–15 there have been riders attached to the Army, Navy and Post Office Appropriation Acts specifying that no part of the appropriation "shall be available for the salary or pay of any officer, manager, superintendent, foreman or other person or persons having charge of the work of any employee of the U. S. Government while making or causing to be made with a stop watch or other time-measuring device a time study of any job of any such employee between the starting and completion thereof, or of the movements of any such employee while engaged upon such work; nor shall any part of the appropriations made in this act be available to pay any premiums or bonus or cash reward to any employee in addition to his regular wages, except for suggestions resulting in improvements or economy in the operation of any Government plant; . . ." (Public Act No. 441, 77th Cong.)

present policy was arrived at only after full discussion with employers on the question of abolishing all incentive plans in the industry.

In a number of industries where incentive methods of wage payment were established before the workers became organized, these incentive systems have continued under collective bargaining. A large proportion of the employees in the electrical-equipment industry are paid under various forms of incentive systems. Almost all coal is mined on a tonnage basis. In the rubber-tire industry various "point" incentive systems have been widely established. More than half of the employees in the steel industry are either piece or bonus workers. Incentive wages are also in effect in several machine-tool plants working under union agreements.

In several industries practically all the production workers are paid piece rates, the simplest form of incentive-wage payment. Included are the apparel industries—clothing, shoes, hosiery, hats, and millinery—which have long been characterized as "piece-rate" industries.

Union Reactions Toward Incentive Wages [3]

Even though most unions have officially adopted an attitude of opposition to incentive-wage plans, there is a wide divergence in actual practice with regard to them. Most unions adapt their tactics to the current situation in their industry or plant. Some incentive plans have been abolished or modified as a result of union pressure. In some cases the union has cooperated in extending the incentive plan to workers not previously covered by it. A few instances were found in which the union had been successful in eliminating the incentive-wage plan, but later, because of competitive necessity, had cooperated with the employer in reestablishing it. Also, there were a few cases in which the employer, partly as a result of union pressure, had made substantial changes in the type of plan used, without discarding the incentive principle; as, for example, by the substitution of straight piece work for one of the more complicated bonus-type plans.

In general, the attitude of each union can be explained in terms of its past experience with its particular incentive problems, the length of its collective-bargaining relations, and the degree of satisfaction obtained under collective bargaining. Many unions have been able to secure certain controls and restrictions in the operation of incentive-wage plans and thus have eliminated some of the abuses about which workers complain. Where the union has been allowed to participate in the day-to-day administration of the incentive system, many of the workers' fears and suspicions have been removed. Bitter opposition has sometimes changed to at least passive acceptance, if not actual support for incentives, after machinery has been established to permit ready appeal for adjusting rates and job standards which workers and the union consider unjust.

[3] The following sections summarize the findings from a study of plans as viewed by workers and their union representatives, made by the Bureau of Labor Statistics during the winter of 1940–41. Eighteen industries were covered, principal attention being given to the textile, shoe, clothing, electrical, steel, auto, glass, and rubber industries. The 65 plants visited were located chiefly in New York, New England, the Pittsburgh area, and the principal Great Lakes industrial centers, with a limited number in the South. Agents of the Bureau of Labor Statistics interviewed national, regional, and local union officials, employers' representatives, impartial arbitrators, and others who had knowledge of the situations. No attempt was made to evaluate the various types of wage incentive systems in the plants surveyed. Rather, the study was limited to worker attitudes toward incentive wages and the specific procedures developed for handling wage rates, production standards, and related problems of incentive-wage systems under collective bargaining.

There are economic factors inherent in certain industries which seem to make piece-work or other incentive plans logical forms of wage payment. Unions in these industries are aware of the problems and have made very little effort to eliminate such plans. For example, piece work in general has been acceptable to unions in the apparel trades because of the importance of manual skill and control, which results in wide variations in individual worker productivity. Thus, there are always sizable groups of faster workers who may feel that a change to time work would cause a decrease in their earnings. In addition, the apparel industries are subject to wide seasonal fluctuation in production and employment. Unions in these industries practice rigid work sharing during slack seasons. The piece-work method makes work sharing possible, since employers are assured a fixed labor cost regardless of the amount of work to be done. Unions realize that without this fixed labor cost per unit of output, very few employers would consent to the rigid work sharing which both the workers and union feel to be desirable in these industries. Also, these unions have adopted a policy of stabilizing labor costs among competing employers. Piece work facilitates stabilization, since unit labor costs may be determined in advance, and do not depend on the relative efficiency of the individual workers or establishments.

Reasons for Worker Opposition to Incentive Wages

RATE CUTTING AND SPEED-UP METHODS

Much of the disrepute of incentive systems among workers is due to the cutting of rates after they are once established for a job. Workers try to increase their production to secure the higher earnings made possible by the incentive system. When, as a result of these efforts, their average earnings become higher than those for similar or comparable work in the surrounding labor market, some employers reduce rates in order to bring earnings back to the competitive level. Workers then find that they have increased their effort and output without increasing their earnings. Another employer practice is to make time studies of the operations upon which rates have been established, and to cut rates if the study reveals that production could be increased. The result may be a continual increase in required individual production, which is referred to by the workers as the "speed-up."

Some workers report that the speed-up has resulted in pushing up output almost to the maximum of human endurance, without substantial increase in earnings. Management representatives in several different plants testified to the importance of the ever-present workers' fear of rate cuts; they reported that production immediately rose 20 to 30 percent in their plants after the management announced a guaranty of piece rates for the duration of the jobs on which they were set.

Guaranties against rate cuts, however, do not entirely dispose of the fear of rate cutting. Efficient management of any plant necessitates continuous improvement in process, materials, and equipment. Workers and unions do not question the employer's right to revise rates on any process which is changed to such an extent as to make the operation easier to perform. But the question arises as to what constitutes actual rate cutting and what, in fact, is legitimate rate

revision. A further complication is the fact that the workers themselves sometimes invent short cuts which amount to a change in process, thereby materially increasing their earnings, only to have their rates reduced when the next time study is made.

Some management representatives maintain that when workers increase their efficiency through their own skill they should enjoy the benefits but that when it is accomplished by eliminating definite elements from operations, rates should be changed because specifications have been altered. In practice, it may be difficult to distinguish management from labor contributions and both of these from changes in specifications. An employer who wishes to make a fair settlement is deterred when his competitors follow the practice of bringing their rates into line with the change in process regardless of how it was accomplished.

In computing workers' pay for their output, the more complex incentive systems make use of formulas that are confusing to most of the workers. The pay is not calculated according to the mere number of pieces produced or the number of hours of work but by means of some special unit such as a "manit" or a "B-hour." Workers claim that the use of a complex formula for wage payment facilitates rate cutting, because actual changes in production standards which affect the unit of measurement may be concealed from them. Whether rate cutting occurs or not, the worker finds it difficult to check the relationship between his pay and his output or effort. Thus, while simple piece rates are often accepted by workers as logical and necessary, the more complicated bonus and premium plans, with their mathematical formulas for determining the workers' earnings, are likely to arouse deep suspicion.

A form of automatic rate cutting takes place in the "decreasing earnings curve" which is an essential part of the so-called "gain-sharing" incentive systems. Inherent in the formulas by which earnings are computed under these plans is the principle that the reward shall be in a decreasing ratio for increased output. These incentive systems are referred to as "gain sharing," because a part of the value of the workers' increased production above "task" is retained by management for efficient supervision and efficient working conditions which theoretically helped make possible the increased output. Naturally enough, workers do not understand the complicated theories behind such sharing of gains between management and labor for increased output, and often refer to the decreasing earnings curve as the "take-away curve."

DISTRUST OF SCIENTIFIC MANAGEMENT

Underlying the workers' fear and suspicion of rate cutting is their objection and uneasiness over a purely "scientific" approach to their jobs. Workers claim that almost any job contains elements which cannot be evaluated by the quantitative, stop-watch technique. They point to unpredictable variations in the quality of materials, in working equipment, and in other conditions surrounding their jobs. They know that every time study is adjusted to include "allowances" for delay, fatigue, and personal time which are arbitrarily determined. They are conscious of the fact that each of the job elements measured by the stop watch is evaluated by the time-study expert on the basis

of his judgment as to whether the worker being timed is a slow, fast, or average worker.

Basically, the workers' grievances against scientific management, especially as practiced in the early days, are attributable to the tendency of management engineers to consider labor as impersonal and as a part of the machine process. Workers feel that they are being treated as abstract "labor," rather than human beings at work, when engineers break down jobs into repetitive operations, study work methods to discover short cuts and more efficient routines, shorten the cycle of operations which each workman is allowed to perform, and emphasize financial reward instead of creative workmanship as an incentive towards efficient production.

Workers' objections to "scientific" wage setting may be alleviated or enhanced by management's approach to the time-study problem. In some plants, no one may become a member of the time-study staff who has not had years of working experience on regular production. In many instances, however, time-study "experts" are employed who have no first-hand familiarity with the jobs they are investigating. The "scientific" determination of working methods and standards by such persons is viewed with suspicion and distrust by workers on the job. Moreover, the impersonal treatment which workers resent is likely to be accentuated when an outside engineering firm is engaged to install an incentive plan. Such a firm is not subject to the controls of personal friendship and community interest which may influence a local plant management.

Workers are particularly opposed to the practices, formerly in widespread use, of employing secret or concealed time studies, or of placing "pace setters" in a department temporarily to get fast timings. These are viewed as instances of employer "cheating" on incentive workers, and they increase the hostility of workers toward all time-study methods.

As noted previously, the more complicated the incentive system, the more opposition it arouses in the workers. To many workers, the very "scientific" nature of the job standards under the complex plans appear merely another means of concealing from them the rate cuts and speed-up of which they complain. Although disagreement over piece rate, bonus rate, or production standard may represent simply a difference of opinion as to what constitutes "a fair day's work for a fair day's pay," the question is often complicated by management's conviction that the workers will not accept facts proved by scientific study and by the workers' feeling that while they are not able to disprove management's technical case they know their own jobs and believe that "the rates are not right."

Effect of Incentive Plans on Efficiency and Employment

Although incentive plans are in general intended to increase worker efficiency, many workers and union officials interviewed during the course of the Bureau's study maintained that they result in an actual decrease in efficiency. Specifically, it was contended that some incentive plans had increased production per worker at the expense of his health and safety, and that in the long run, this did not promote true efficiency. Instances were cited in which the introduction of incentive systems had resulted in an increase in the amount of spoiled

and damaged goods, even to the extent, in some cases, of offsetting the savings in labor cost resulting from the speed-up.

In some piece-rate industries, the workers charge that employers tolerate an inefficient production process because, under the piece-rate system, they are assured a fixed labor cost per unit regardless of individual output. In such cases the workers themselves bear the burden of the cost of inefficiency, since their earnings are directly affected by lowered production.

Related to the problem of efficiency is the lack of effective supervision which prevails under some incentive plans. Advocates of incentives have emphasized how such plans cut supervisory costs because workers have a financial stimulant to maintain and increase production. Although the workers themselves usually enjoy this freedom from close supervision, in some cases it may contribute to lower total plant efficiency, at least over a period of time.

On the other hand, when incentives result in higher per capita output as a result of the speed-up of individual production, the result may be a decrease in employment. Even though expanding business might absorb the increased output, there is an instinctive fear on the part of the workers, based on past experience, that the sum total of jobs has been decreased and that job opportunities have been lost for others.

Frequently, the installation of an incentive-wage system has resulted in an immediate decrease in employment in the plant. The burden of such unemployment is likely to fall on the older and the slower workers who are unable to maintain the increased tempo of production even though the quality of their work may be satisfactory. Under a straight piece-work system slow producers may be retained, since the unit labor cost is not greatly affected. Under the incentive plans incorporating a guaranteed minimum wage or "task," workers are eliminated who do not consistently make their "task" or minimum rate.

Effect of Incentive Plans on Unionization

To some employers, one of the principal advantages of incentive methods is the competitive spirit which is engendered. From the workers' point of view, such competition may lead to bitter rivalries and jealousies and a general atmosphere of tension. This personal friction is enhanced when group incentives are introduced, as earnings of each worker are dependent on the output of the group as a whole. Proponents of group incentives maintain that the group exercises "cooperative self-supervision" because of the attention which faster workers must pay to individuals in the group who fall behind in their work-efforts. However, some of these group incentive plans have been abandoned because of the internal friction created within the group.

Friction engendered by incentives has proved an obstacle to unionization in some plants. Workers reported instances of employer favoritism in the distribution of hard and easy work, and of the encouragement of individual high producers so as to impair the group solidarity which is necessary to effective union action.[4] The fact that such complaints were heard, even in the highly organized plants

[4] Frederick Taylor is reported to have said that scientific management makes collective bargaining and trade-unions unnecessary as protection to workers, since under scientific management all shop problems are settled by law and science. (Robert Franklin Hoxie: Scientific Management and Labor, p. 164.)

covered by the Bureau's survey, indicates the widespread extent of such grivances against incentives.

In spite of these tendencies which deter union organization, the grievances arising under incentive plans have tended in some cases to encourage organization of the workers. In the plants covered by this survey, at least, unionism was strongly supported by the workers because of their conviction that their unions afforded the surest means of preventing injustices and settling grievances arising from the day-to-day operation of the incentive plans.

Collective-Bargaining Controls

The application of collective bargaining to the determination of wage rates often effects substantial changes in the workers' point of view, even though the same incentive plan remains in operation. The right of union participation in determining rates and standards, the right of grievance negotiation to eliminate specific abuses, together with the safeguards negotiated between the union and the employer, all have the effect of modifying to a considerable extent all types of incentive plans.

When unions once find that incentive systems in their industry cannot be eliminated, at least for the present, most of them direct their attention to collective-bargaining controls which will alleviate some of the workers' grievances under the incentive system. These controls, usually outlined in the union agreement, are of three general types: (1) Specific safeguards which set up certain guaranties and prohibitions on incentive practices; (2) the right of union participation in the adjustment of incentive rates and standards; and (3) in the absence of joint participation, the right to appeal any rate which a member considers unsatisfactory, usually through the regular grievance procedure.

To prevent rate cutting and speed-up, unions attach the most importance to guaranties against cuts in rates after they have been established for a job or operation. The guaranty assures employees that production increases resulting solely from their own increased effort or efficiency will not result in rate cuts which take away the resulting extra earnings. A conditional clause, allowing the employer to change rates when new methods or equipment are introduced, usually accompanies such guaranties.

Guaranteed earnings, in the form of minimum hourly rates for incentive workers, are provided under some types of incentive plans. Union efforts are directed toward raising these minima as high as possible in order to protect workers against wide fluctuations in their weekly earnings as a result of irregularity of work and other causes beyond their control. Another form of protection is the payment of an established hourly rate for time lost through machine breakdown, failure to receive work, experimenting with new patterns or models, etc.

Not yet common, but increasingly a union objective, are guaranties which will assure the average experienced worker a given percentage of earnings over basic rates. To some extent such guaranties reduce the effect of the incentive wage, since workers who reach a certain average efficiency are assured of weekly earnings commensurate with such efficiency regardless of minor fluctuations in daily production.

Specific safeguards in connection with time studies include the prohibition of secret or concealed time studies and employer encouragement of "pace setting" or other practices which workers have come to regard as unfair. In some cases the percentage allowances for fatigue, delay, etc., which must be added to the time allowed for the job performance, are specified in the union agreements. Other agreements outline the conditions under which time studies must be made.

Union Participation in Setting Rates and Job Standards

Some unions consider that their greatest protection under incentive-wage plans is the right of day-to-day participation in the setting of rates and standards on all new or changed models or operations. This form of participation is typical in the clothing industries where piece rates prevail. Such advance participation, of course, does not prevent the union from taking up as a grievance any new rates which, after a trial period, do not enable the workers to equal their previous earnings. Also, day-to-day bargaining over piece rates is no substitute for the regular annual or biennial negotiations over the general level of wages in the bargaining area.

APPAREL INDUSTRIES

In the organized section of the apparel industries, such as those manufacturing men's and women's clothing, hosiery, millinery and shoes, unions have gained very complete participation in rate setting. The development, in the major producing centers, of more systematic price-settlement procedures which protect the workers from the hardships of earlier competitive price setting has done much to make piece work acceptable to them.

In the women's garment industry, the New York Dress Joint Board representing the various craft locals of the International Ladies' Garment Workers' Union has developed a "unit system" of price settlement and price lists for standard operations in the various price ranges as yardsticks to guide actual price making. These yardsticks were drawn up by the union using time-study procedures, but are only informally observed in price settlement. Each craft working under each employer usually has its own price committee which meets with him as often as necessary to settle individual prices. If agreement is not reached in this way, the business agent of the craft concerned is called in; if the deadlock continues the case is taken to the Price Adjustment Bureau for impartial decision. The New York coat and suit industry also uses yardstick tables of prices and follows a very similar procedure. Under the "contracting system" that is characteristic of both branches of the industry, workers were never adequately safeguarded as long as individual subcontractors were permitted to set piece prices. Hence, an essential factor in the present price-settlement arrangement is that jobbers are responsible for setting all prices for their contractors.

In the greater part of the men's clothing industry, piece rates are set within the framework of the Amalgamated Clothing Workers' stabilization program inaugurated in 1939. This establishes minimum total labor costs negotiated between the union and several employers' associations for several basic grades of garments. Stabilization does

not standardize individual piece prices, and each new model in a local shop requires a price list. Ordinarily the price list is drawn up by the appropriate union price expert in consultation with a management representative, but all price lists must have the final approval of the stabilization department, which is located in the national office and is responsible to the president of the union. The stabilization program thus gives complete responsibility in the enforcement of wage standards to the union's stabilization department.

In the full-fashioned-hosiery industry, the majority of employers whose employees are unionized are members of the Full Fashioned Hosiery Manufacturers of America, Inc. The union, the American Federation of Hosiery Workers, has worked out with the employers' association a system of standardizing piece rates for all members through a basic list of piece rates. All changes in style or type of machine and other variations which affect piece rates are included, either in the basic list or as "extras" which are added to the basic rates to make the total piece rate for each operation. The major burden of negotiating piece rates, therefore, does not fall on the individual employer or the local union. A large proportion of the piece rates which arise during the course of a manufacturing season can be determined simply by reference to the established list. All rates which cannot be settled in this manner are referred to officials of the employers' association and regional officials of the union. If they cannot agree, the rates are referred to the permanent impartial chairman for settlement. Temporary rates are often established for unfamiliar work, and either party may request a change in rate if the temporary rate does not prove satisfactory. In the past few years comprehensive studies of individual earnings in union mills have been made by the impartial chairman. These studies provide a constant check, available to both the union and the employers, as to whether or not rates in a particular plant are out of line with those in other union plants.

In the shoe industry, although there is some degree of standardization among competing employers in each locality, there is practically no standardization on a wider basis in the industry. Even within a given locality the union has, in some cases, offered lower piece rates to individual employers who needed additional encouragement to stay in business in that city. In several of the Massachusetts shoe centers covered in the Bureau's survey, piece rates are standardized on the basis of city-wide price lists for each operation, with centralized bargaining over new rates through shoe employers' associations. In these centers the settlement of piece rates on new styles is taken out of the hands of individual employers. The employers' associations have price-settlement experts who negotiate with the business agents of the unions. The basic price lists were drawn up with the impartial assistance of the Massachusetts State Board of Mediation and Arbitration which also arbitrates new rates upon request.

TEXTILE INDUSTRY

In the textile industry the changing of piece rates on new styles and new materials is not so important as the introduction of new methods and new types of machinery. In some textile plants a piece rate is adjusted only at the time a change is made in the work assignment or loom load. This in turn accompanies either a major change

in equipment or the accumulation of many minor changes which causes the employer to ask for larger work loads. This may arise only once or twice in many years of negotiations between the employer and the union. Because of the highly competitive nature of the textile industry, unionized plants must generally follow the work assignments in unorganized plants, to enable the unionized plant to stay in business.

In this industry the union has asked for, and in many cases received, the right to participate in all work-load changes before they become effective. Negotiations for such major changes are often protracted. They may be accompanied by independent research on the part of the union as to work loads on similar equipment in other plants; time studies of the new operations by the union, independent of the employer; trial periods as long as 3 months; and, finally, if a deadlock ensues, arbitration.

In several of the textile cases studied, the union obtained two important concessions from the management before agreeing to a work-load change: (1) That no one would be discharged as a result of "stretch-out" (displaced workers were absorbed on other work throughout the factory); and (2) that no worker would suffer a decrease in earnings as a result of the new assignments. As a matter of fact, actual earnings of workers usually increased somewhat, although piece rates were, of course, lowered as a result of the increased work loads.

OTHER EXAMPLES OF UNION PARTICIPATION

Except for the joint participation in rate setting in the industries just described, there are very few examples of union participation in the determination of incentive standards before they are put into effect. In a few small steel-products plants, where few changes occur in rates and no time-study procedures are used, joint union-management determination of rates has become accepted practice.

In the steel industry, also, there have been instances of union-management negotiations over job classifications and evaluations. In the flat-glass industry the union effected standardization of job classifications between the two largest producers as a result of joint union-management negotiations.

Union participation in some phase of time-study procedure is somewhat more common than actual joint determination of rates. In many plants union representatives are consulted about each time study that is made, and are thus given a voice in choosing the worker to be timed and an opportunity to observe the study in order to insure that normal working conditions are maintained during the timing.

Although there are a few examples of joint rate setting outside the apparel industries, these do not necessarily indicate a trend toward the joint determination of all incentive standards in other industries. Many union leaders interviewed during the course of this study expressed doubt that unions in mass-production industries should accept such responsibility. According to these leaders, the setting of rates and standards is a management function, and the union must remain free to challenge any decision of management. If union leaders participate in setting of rates, the rank-and-file membership may lose confidence in them, should those rates prove unsatisfactory. At the same time, such participation hinders a union official from acting as a grievance agent for workers dissatisfied with rates which he has assisted in determining.

Adjustments Through Grievance Procedure

Most unions have adopted the grievance method as the means of controlling incentive abuses. In many plants in the mass-production industries unions have no other choice, since the determination of rates and standards is performed by a large staff of management experts through elaborate time-study procedure. In such cases the unions have not been able to afford the expense of matching this technical staff with union representatives with similar training.

ADVANCE NOTICE TO UNION OF ALL RATE CHANGES

In several of the cases covered by the Bureau's survey, in which rates and standards are set solely by management, a specified period of notice is given the union before the rates take effect. This allows the union time to negotiate with management through the grievance procedure, if the proposed rate is objected to by workers. The period of such advance notice ranges from 20 hours to 2 weeks. In one case all "major" changes are "cleared" with the union representative, while in another case all new and revised rates must be signed by the union department committeeman before taking effect.

Many employers, however, are reluctant to give advance notice because they feel that the proposed piece rates on new production items or on new machines are always likely to seem too low to the workers until by actual work experience they gain the skill and get into the new routine. It is common practice in some industries to establish piece rates only after production has been under way for periods ranging from a few hours to several weeks. In many plants, however, piece-work rates are established immediately upon the introduction of the new process or change in process, and appeals for adjustment may not be made until after a specified trial period.

PROCEDURE FOR APPEALS

Most union agreements set forth in more or less detail the successive steps in the handling of grievances. Cases involving incentive rates and job standards in most plants are brought up through the regular grievance procedure. The foundation of all grievance procedure is the daily interchange in the shop between foremen and union stewards or committeemen. They must see that prevailing incentive rates and standards in their departments or units are not infringed upon and that guaranties under the agreement are upheld. They must handle and settle, if possible, grievances relating to such matters. In some plants covered by this survey, the foreman has the power to overrule the time-study representative in decisions affecting jobs, timings, rates, or standards in his own department. Thus, foremen are often successful in obtaining the necessary adjustments and corrections in the first instance, eliminating successive bargaining steps and delay.

Most local unions in large manufacturing establishments maintain a paid business agent whose function it is to prepare and present cases to plant management officials. When grievances over incentive rates cannot be settled between the foreman and union committeeman, it is the practice in many companies to discuss them at regular meet-

ings, scheduled once a week or every 2 weeks, between the union business agent and shop committee and the director of labor relations or other management officials concerned with wage rates and production standards. Although it is increasingly the practice to have the union submit grievances in written form, informality seems to characterize the treatment of grievances in most establishments.

Occasionally, special committees are established by the union, or jointly by union and management, to consider particular problems arising in connection with the operation of an incentive system. One large electrical-equipment plant, in order to reduce the burden on the regular union-management grievance meetings, instituted the practice of having small joint subcommittees investigate and report on certain of the more complicated incentive issues.

APPEAL FROM TIME-STUDY RESULTS

In connection with its grievance procedure on incentive-rate cases, unions have sought more complete participation in time-study methods. Usually, this involves the right to post observers when a re-study is made of a disputed rate. Unions thus are able to challenge and, if necessary, carry up to the highest plant officials, any instances of "unfair" time studies. They are able to observe the conditions surrounding the time study, to object if "too perfect" conditions are arranged in such a way as to secure fast timings. Unions may investigate and protest the allowances for personal time, speed and effort rating, and other factors which make up the final timing values.

In rare cases unions have secured the right to make their own time studies in order to check those taken by company officials. Usually, these studies are made by higher union officials who have experience in technical problems of the industry.

EARNINGS IN THE EASTERN AIRFRAME INDUSTRY, APRIL 1942

By Louis M. Solomon and N. Arnold Tolles, *Bureau of Labor Statistics*

Summary

THE early spring of 1942 saw eastern aircraft-frame plants approaching uniformity in payment for workers with short periods of service. Seven of the eight establishments in this area now pay new employees 60 cents an hour and advance this rate at regular intervals until a 75-cent scale is attained after 3 or 4 months' service. The remaining establishment pays its new workers 50 cents and advances them in 5-cent monthly stages until the hourly rate reaches 65 cents.

No such standardization has been achieved with respect to employees having longer service records. Although there are fairly well-defined wage levels for successive degrees of skill, there still remains considerable variation in the wage rates paid by the several plants.

All of the eastern airframe establishments pay their employees one and one-half times the regular rate for work after 8 hours a day, or 40 hours a week. There is little uniformity, however, in the provisions for compensating employees for work on extra shifts.

The hourly earnings of first-shift workers, exclusive of overtime, averaged 84.1 cents in April 1942. This is but slightly above the average wage (82.9 cents) paid in December 1941 to similar workers in the California plants. Earnings in that area are estimated to have increased less than 1 cent an hour since December. Wages in the two regions for identical occupations are quite similar.

Characteristics of the Industry

The Atlantic coast of the United States, the scene of man's first controlled flight, no longer dominates, as it once did, the aircraft industry of the Nation. New areas of production have been created. Names famous in aircraft history have moved westward. Dramatic conversions of other facilities to aircraft have captured attention.

The eastern aircraft industry, however, remains a potent force. Despite the focusing of the spotlight on other regions, the East has recently increased in importance as a source of supply for the air arms. Thousands of workers find their livelihood in the seaboard plants now producing trainers, fighters, and bombers.

Many of these workers are new to the industry. Many indeed have come directly from school or home and are without previous industrial experience. What do these workers earn? What can new employees expect in the way of compensation? How do earnings in the East compare with those for similar work in other areas? These questions the Bureau of Labor Statistics has sought to answer in its present report.

The field of inquiry of this report is the earnings of employees in airframe plants (establishments producing complete aircraft) located along the Atlantic seacoast north of the Potomac. The eastern airframe industry, defined here to exclude the Buffalo (N. Y.) area,

is made up of eight establishments of widely varying characteristics. The plants are scattered from Maryland to Connecticut. They vary in size in the ratio of 1 to 20. Some are in rural areas, others in large metropolitan districts. The product ranges from smal primary trainers, through speedy fighters, to huge, complex bombers. And yet, because of present-day labor mobility, and the relatively small distances involved, it is not unrealistic to consider these plants as falling within a competitive labor market.

There is some direct evidence to support this conclusion. A study of the employees in two of the companies covered by the report shows that workers at these plants were drawn from every one of the Eastern States containing an airframe plant. Among the remaining establishments, although no detailed analysis was made, examination reveals a widespread recruitment of labor from throughout the eastern area.

Recent History of Wage Rates

The average hourly earnings of workers in eastern aircraft-frame plants have exhibited a steady and continuous increase during the last 18 months. In December 1940, the average hourly wage stood at 71.3 cents. The average had increased to 74.2 cents by March 1941, and in June 1941 had advanced to 79.3 cents. The level of earnings in September 1941 was 83.7 cents, in December of that year, 85.8 cents. A larger increase took place over the next 3 months, so that by March 1942 the average had reached 93.3 cents. This figure, to be sure, included substantial payments for overtime at penalty rates; without such payments the increase in hourly earnings would be less pronounced.

The increase in the regional average did not result from an area-wide uniform adjustment of rates. Establishments which had been compensating employees at rates above the average tended to grant larger and more frequent increases than the lower-wage plants, although without exception every eastern establishment did adjust wages upward during the period in question. This lack of uniformity in wage adjustments, however, had the effect of exaggerating the differences in plant averages referred to below.

Plant average hourly earnings in each month since June 1941 are available for six of the eight plants included in the study. In June 1941, the spread in earnings between the highest- and lowest-average plants was 15.4 cents. The differential had increased to 44.8 cents by

There is some reason to believe that earnings from plant to plant will display less dispersion in the near future. Within the last 2 months, eastern airframe producers have adopted a nearly uniform scale of entrance rates. Except in one plant, new workers are hired at 60 cents and progress by regular and automatic adjustment of rates to 75 cents per hour. Generally the adjustment takes the form of a 5-cent increase for each month of service, the 75-cent scale thus being attained after 3 months, corresponding with the entrance-wage schedule introduced by North American Aviation some 9 months earlier. In two of the plants, workers advance to 70 cents after 2 months' service and receive the remaining 5-cent increase after 2 more months, making the total period of adjustment 4 months. In the company representing the exception to the 60-cent entrance rate, workers are hired at 50 cents [1] and advance in 5-cent monthly increases until 65 cents is attained.

Inasmuch as beginners represent a large proportion of the present-day total working force, the application recently of these nearly uniform entrance scales will undoubtedly result in a narrowing of the spread in plant averages. As yet, there has been no move toward stabilizing the rates for the larger group of workers who have progressed beyond the learning period. As will be shown later, earnings of experienced workers in specific occupations vary considerably from one plant to the next.

Scope of Report

The wage data on which this report is based were obtained in the course of a comprehensive Nation-wide study which embraces all three major divisions of the industry—airframes, aircraft engines, and propellers. An earlier report [2] dealt with earnings of airframe workers in California. Subsequent articles will present data for workers in other areas and in the remaining branches.

The wage data used in the present report were obtained through visits by the Bureau's staff of trained representatives, who transcribed the information directly from pay rolls or other records. The Bureau's representatives obtained wage data for first-shift workers in each of a selected group of occupations. These selected occupations, although representing less than half of the very numerous jobs found in the industry, do account for all of the important ones and include some 75 percent of the workers. This method of obtaining information was

is made up of eight establishments of widely varying characteristics. The plants are scattered from Maryland to Connecticut. They vary in size in the ratio of 1 to 20. Some are in rural areas, others in large metropolitan districts. The product ranges from smal primary trainers, through speedy fighters, to huge, complex bombers. And yet, because of present-day labor mobility, and the relatively small distances involved, it is not unrealistic to consider these plants as falling within a competitive labor market.

There is some direct evidence to support this conclusion. A study of the employees in two of the companies covered by the report shows that workers at these plants were drawn from every one of the Eastern States containing an airframe plant. Among the remaining establishments, although no detailed analysis was made, examination reveals a widespread recruitment of labor from throughout the eastern area.

Recent History of Wage Rates

The average hourly earnings of workers in eastern aircraft-frame plants have exhibited a steady and continuous increase during the last 18 months. In December 1940, the average hourly wage stood at 71.3 cents. The average had increased to 74.2 cents by March 1941, and in June 1941 had advanced to 79.3 cents. The level of earnings in September 1941 was 83.7 cents, in December of that year, 85.8 cents. A larger increase took place over the next 3 months, so that by March 1942 the average had reached 93.3 cents. This figure, to be sure, included substantial payments for overtime at penalty rates; without such payments the increase in hourly earnings would be less pronounced.

The increase in the regional average did not result from an area-wide uniform adjustment of rates. Establishments which had been compensating employees at rates above the average tended to grant larger and more frequent increases than the lower-wage plants, although without exception every eastern establishment did adjust wages upward during the period in question. This lack of uniformity in wage adjustments, however, had the effect of exaggerating the differences in plant averages referred to below.

Plant average hourly earnings in each month since June 1941 are available for six of the eight plants included in the study. In June 1941, the spread in earnings between the highest- and lowest-average plants was 15.4 cents. The differential had increased to 34.8 cents by November 1941, but has since narrowed slightly, falling to 30.1 cents in March 1942. It should be recognized at the outset that this rather wide dispersion reflects other factors besides the level of basic wage rates. The amount of overtime worked, the proportion of employees on extra shifts, the number of beginners at lower rates of pay, all play a role in determining the over-all average pay.

Over and above these influences, however, it is obvious that considerable variation exists in basic earnings. The average earnings in April 1942 of first-shift workers in selected occupations, representing roughly three-fourths of plant employment, varied by 25.8 cents as between the highest- and lowest-paying establishments. As will be shown later, plant averages for workers in identical occupations generally display somewhat less divergence. Hence, it appears that part of the difference in the plant over-all averages results from a variation in the composition of the respective labor forces.

There is some reason to believe that earnings from plant to plant will display less dispersion in the near future. Within the last 2 months, eastern airframe producers have adopted a nearly uniform scale of entrance rates. Except in one plant, new workers are hired at 60 cents and progress by regular and automatic adjustment of rates to 75 cents per hour. Generally the adjustment takes the form of a 5-cent increase for each month of service, the 75-cent scale thus being attained after 3 months, corresponding with the entrance-wage schedule introduced by North American Aviation some 9 months earlier. In two of the plants, workers advance to 70 cents after 2 months' service and receive the remaining 5-cent increase after 2 more months, making the total period of adjustment 4 months. In the company representing the exception to the 60-cent entrance rate, workers are hired at 50 cents [1] and advance in 5-cent monthly increases until 65 cents is attained.

Inasmuch as beginners represent a large proportion of the present-day total working force, the application recently of these nearly uniform entrance scales will undoubtedly result in a narrowing of the spread in plant averages. As yet, there has been no move toward stabilizing the rates for the larger group of workers who have progressed beyond the learning period. As will be shown later, earnings of experienced workers in specific occupations vary considerably from one plant to the next.

Scope of Report

The wage data on which this report is based were obtained in the course of a comprehensive Nation-wide study which embraces all three major divisions of the industry—airframes, aircraft engines, and propellers. An earlier report [2] dealt with earnings of airframe workers in California. Subsequent articles will present data for workers in other areas and in the remaining branches.

The wage data used in the present report were obtained through visits by the Bureau's staff of trained representatives, who transcribed the information directly from pay rolls or other recrods. The Bureau's representatives obtained wage data for first-shift workers in each of a selected group of occupations. These selected occupations, although representing less than half of the very numerous jobs found in the industry, do account for all of the important ones and include some 75 percent of the workers. This method of obtaining information was adopted as a means of expediting the collection and tabulation of the data.

The occupational pattern of one eastern plant was unique; it proved impossible to align the duties of its employees with the job classifications characteristic of the industry. For that reason, the occupational averages shown in a later section are based on data from only seven establishments.

Material was originally obtained for a pay period in the autumn of 1941 but, because of the fluid nature of the wage structure, it was found necessary to secure more recent information. Representatives revisited and rescheduled three establishments which had experienced broad and irregular rate changes since the original period

[1] Applicants with previous experience receive 55 cents.
[2] Monthly Labor Review, March 1942.

surveyed. The remaining companies had held wages constant or had applied a general and uniform adjustment. From these latter plants, information on the nature of the changes was obtained and, where necessary, corrections of the original data were made. The wage data as revised now reflect the wage structure of the industry in April 1942.

Average Hourly Earnings

FACTORS AFFECTING AVERAGE EARNINGS

As has been stated earlier, the gross pay of wage earners is influenced by at least two other determinants than that of base hourly rate—the amount of time worked on extra shifts for which additional pay is granted and the amount of overtime worked at extra rates of pay.

The shift differentials now in effect among eastern airframe manufacturers exhibit little uniformity. Table 1 presents the provisions for such extra compensation.

TABLE 1.—*Scale of Wages for Second and Third Shifts, by Company*

Company	Number of shifts worked	Second shift	Third shift
Company A	3	110 percent of base wage plus 5 percent of total earnings.	110 percent of base wage plus 5 percent of total earnings.
Company B	3	Base rate plus 5 cents an hour	114 percent of base rate.
Company C	2	Base rate plus 9 cents an hour	
Company D	2	Base rate plus 9 cents an hour	
Company E	2	Base rate plus 10 cents an hour	
Company F	2	Base rate plus 10 cents an hour	
Company G	2	118 percent of base rate	
Company H	2	Base rate plus 5 cents an hour	

The limitations imposed by the method used in collecting the wage data do not permit a comparison of earnings between first- and second- and third-shift workers. The study of the California area indicated that second-shift employees average about 6 percent more and third-shift workers about 20 percent more than first-shift employees in identical occupations. Inspection of the data above suggests that eastern employees working the extra shifts would average roughly 10 percent more than first-shift workers in the same occupations. However, because of the tendency for the more highly skilled workers to be disproportionately represented on the first shift, the average earnings of all second- and third-shift workers are somewhat less than might be expected from the provisions established for their compensation.

All of the eight eastern frame plants pay one and one-half times the regular rate for daily hours in excess of 8 and for weekly hours over 40. Three of the establishments pay time and one-half for Saturday and double time for Sunday work. Another company pays double time for the seventh consecutive day of work. In the remaining four plants no special provisions for compensating for Saturday and Sunday work have been established.

The hours worked by employees of the eastern plants average more than 53 a week. As a consequence, a considerable proportion of the total pay of these workers represents the extra payment due to overtime. The effect of overtime compensation and shift differentials on average earnings can be seen in the following tabulation, which pre-

sents the difference between straight-time earnings of first-shift workers in April 1942 and the gross average pay of all workers including extra-shift and overtime compensation in each of four plants:

	Difference in earnings (cents)
Company I	3.8
Company II	9.2
Company III	10.3
Company IV	13.1

It will be seen that the average "take-home" in three of the plants was considerably higher than the straight-time earnings of the workers. Even in company I, where a very small amount of overtime was worked, overtime and shift premiums served to raise hourly pay by an average of nearly 4 cents. It is estimated that for the region as a whole, gross average earnings were about 9 cents higher than the straight-time average for first-shift workers.

Like the west coast industry, the eastern frame producers pay most of their workers a straight hourly or daily wage. In only one plant was there any departure from this rule; in that establishment a small proportion of the total working force was paid a production bonus in addition to the base hourly rate. The wage data presented in this report include the premium earnings of these bonus workers.

STRAIGHT-TIME EARNINGS IN THE REGION AS A WHOLE

The average hourly earnings exclusive of overtime payment of first-shift workers in eastern airframe plants were 84.1 cents in April 1942. These earnings may be compared with average straight-time pay of 82.9 cents earned by first-shift workers in California plants in December 1941.

Except for establishing the relation of the general wage level in one area to that in effect in another, or as an instrument for comparison with other industries, a single figure such as that cited above has little utility. Earnings within a single region not only vary substantially, from plant to plant, but also mirror differences in skill and experience from occupation to occupation. Table 2 illustrates the influence exerted upon earnings by varying degrees of skill. Employees have been classified according to the length of training and experience that would normally be required for a given occupation and grade. It should be pointed out, however, that the demands of a vastly increased production schedule have forced employers to assign workers to occupations ordinarily requiring considerable training much sooner than would normally be the case.

TABLE 2.—*Average Hourly Earnings of First-Shift Workers in Eastern Airframe Industry by Length of Required Training, April 1942*

Length of training required for occupation	Percent of employees	Average hourly earnings
Less than 6 months	19.1	$0.681
6 months and under 1 year	25.5	.772
1 year and under 2 years	26.8	.849
2 years and under 3 years	8.4	.927
3 years and under 4 years	8.3	.973
4 years and over	11.9	1.075
All workers	100.0	.841

As shown by table 2, earnings ranged from 68.1 cents for workers in jobs normally requiring less than 6 months' experience to $1.075 averaged by employees in occupations demanding 4 years or more experience. It will be noted that the increases in earnings accompanying each successive experience level are consistent and fairly regular. From the clear-cut differences in earnings among the various classes, it might appear that each comprises a coherent, homogeneous group of workers. Such, however, is not the case. A very considerable variation in earnings exists even within a single skill class.

AVERAGE HOURLY EARNINGS BY LENGTH OF REQUIRED TRAINING PERIOD, OCCUPATION, GRADE, AND PLANT

Table 3 presents the average straight-time hourly earnings of first-shift workers in the eastern airframe industry by length-of-service class and occupational grade for the region as a whole and for each plant separately. The plant averages have been arranged in descending order; the data within one column do not relate to the same establishment. Regional averages have been presented for each selected occupation in which 50 wage earners distributed over at least two establishments were found. Individual plant averages are shown only for three or more workers. These limitations were imposed to avoid statistical instability in the data.

As shown by table 3, average earnings of workers are determined not alone by degree of skill, but by the specific occupation at which they work as well. Thus, among the 16 occupational grades for which 4 years' or more experience is required, average earnings ranged from $1.252 for tool and die makers, grade A, to 79.6 cents for service and flight inspectors, grade C. In the 12 occupations requiring between 3 and 4 years of experience the range was from $1.076 to 83.4 cents. The 2-to-3-year group varied from 81.8 cents to $1.116, the 1-to-2-year occupations from 75.8 to 95.2 cents, and the 6-months-to-1-year group from 74.2 to 90.2 cents. The wage earners in occupations demanding less than 6 months' experience had average earnings ranging from 61.4 cents to 79.2 cents.

Table 3 also shows the variation in occupational averages from plant to plant. Here, too, the differences in earnings are quite substantial. Among tool and die makers, grade A, for example, the range was from $1.05 to $1.29, a difference of 24 cents. General assemblers, grade A, ranged from 80 to 99 cents, a 19-cent differential. Inspection will reveal that these are not extreme cases; rather, the entire tabulation is characterized by a very considerable dispersion in plant averages for each of the occupations studied.

A noteworthy feature of the plant occupational averages is their lack of consistency. Establishments with relatively high wage levels may pay rather low wages to some occupational groups. Conversely, low-wage establishments pay some occupations well above the average. This is typified by the experience of one plant selected at random. It will be noted that there are 10 occupational grades in which all of the plants are represented. The relative position of the selected company in these 10 grades is as follows: first in one occupation, second in one occupation, fourth in four occupations, fifth in three occupations, and sixth in one occupation. Thus, in these 10 occupations the relative rank of the workers in the selected company ranged from first to next to last.

TABLE 3.—*Average Hourly Earnings of First-Shift Workers in Eastern Airframe Plants, by Length of Training Period and Occupation, April 1942*

Length of training period and occupation	Percent of total selected employees	Average hourly earnings	Individual plant averages in descending order of average						
4 years or more									
Tool and die makers, grade A	0.5	$1.252	$1.290	$1.281	$1.275	$1.220	$1.158	$1.050	------
Pattern makers, wood, grade A	.2	1.188	1.252	1.140	1.067	------	------	------	------
Inspectors, templates, tools and dies, grade A	.2	1.162	1.288	1.275	1.237	.975	------	------	------
Milling-machine operators, grade A	.2	1.135	1.230	1.118	1.108	------	------	------	------
Turret-lathe operators, grade A	.2	1.124	1.253	1.105	1.043	------	------	------	------
Jig builders, assembly, metal, grade A	.5	1.123	1.275	1.183	1.136	1.111	1.071	1.056	------
Tool and die makers, grade B	.3	1.087	1.164	1.142	1.106	.983	------	------	------
Working supervisors, productive	5.8	1.081	1.220	1.199	1.188	1.120	1.049	1.046	$0.918
Electricians, maintenance, grade A	.2	1.063	1.075	1.048	1.044	------	------	------	------
Bench machinists, grade A	.6	1.052	1.203	1.138	1.030	.999	------	------	------
Engine-lathe operators, grade A	.2	1.043	1.235	.994	.943	------	------	------	------
Sheet-metal workers, bench, grade A	1.3	1.039	1.086	1.086	1.045	.972	.875	------	------
Carpenters, maintenance, grade A	.2	1.010	1.023	1.016	.973	------	------	------	------
Mechanics, maintenance, grade A	.2	.999	1.072	1.043	.930	------	------	------	------
Tool and die makers, grade C	.2	.940	1.017	.958	.912	------	------	------	------
Inspectors, service and flight, grade C	.2	.796	.798	.775	------	------	------	------	------
3 and under 4 years									
Metal fitters, grade A	.6	1.076	1.087	1.077	------	------	------	------	------
Assemblers, precision, bench, grade A	.4	1.058	1.075	1.052	------	------	------	------	------
Inspectors, assembly, general, grade A	.3	1.010	1.130	1.117	1.075	1.056	.957	------	------
Assemblers, general, grade A	2.2	.995	1.045	1.040	1.039	1.032	.875	.875	.800
Milling-machine operators, grade B	.4	.972	1.079	1.000	.975	.953	------	------	------
Inspectors, assembly, final, grade B	.2	.965	.967	.930	.918	------	------	------	------
Turret-lathe operators, grade B	.2	.963	.917	------	------	------	------	------	------
Loftsmen	.6	.952	1.275	1.112	.990	.817	------	------	------
Engine-lathe operators, grade B	.2	.939	1.088	.975	.933	.883	------	------	------
Lay-out men	.7	.926	1.118	1.117	.930	.886	------	------	------
Jig builders, assembly, metal, grade B	1.3	.897	1.075	1.000	.995	.980	.960	.864	.713
Inspectors, machined parts, grade C	.2	.834	.900	.826	------	------	------	------	------
2 and under 3 years									
Installers, electrical, grade A	.3	1.116	1.175	1.070	1.063	1.032	------	------	------
Welders, gas (aluminum and steel), grade A	.6	1.093	1.159	1.140	1.106	1.083	------	------	------
Installers, power plant, grade A	.3	.985	1.057	.975	------	------	------	------	------
Field and service mechanics, grade B	.2	.969	1.075	.918	------	------	------	------	------
Installers, general, grade A	1.0	.948	1.063	.930	.922	.767	------	------	------
Mechanics, maintenance, grade B	.2	.928	.975	.938	.936	------	------	------	------
Inspectors, assembly, general, grade B	.4	.916	.975	.938	.901	.840	------	------	------
Punch-press operators, grade A	.3	.911	.985	.951	.928	.917	------	------	------
Sheet-metal workers, bench, grade B	1.7	.903	.939	.931	.927	.856	.692	------	------
Bench machinists, grade B	.9	.876	1.064	.911	.903	.865	.813	------	------
Painters, aircraft, grade A	.4	.865	1.078	1.038	.975	.971	.940	.693	------
Electricians, maintenance, grade B	.2	.851	.973	.937	.900	.790	------	------	------
Inspectors, detail, grade B	.2	.831	.963	.938	.844	.717	------	------	------
Inspectors, assembly, final, grade C	.4	.818	.842	.815	------	------	------	------	------
1 year and under 2 years									
Craters, grade A	.2	.952	1.007	.950	------	------	------	------	------
Metal fitters, grade B	.4	.931	.975	.937	.936	------	------	------	------
Assemblers, precision, bench, grade B	1.8	.916	.921	.825	------	------	------	------	------
Power-shear operators, grade A	.2	.913	.993	.941	.934	.886	------	------	------
Riveters, grade A	2.7	.904	.964	.949	.887	.869	.864	.804	------
Welders, gas (aluminum and steel), grade B	.3	.891	.955	.945	.675	------	------	------	------
Drill-press operators, grade A	.2	.887	.957	.926	.844	------	------	------	------
Assemblers, general, grade B	7.3	.884	.934	.934	.925	.898	.880	.786	.682
Coverers, fabric, grade A	.2	.860	.923	.905	.850	.779	------	------	------
Installers, power plant, grade B	.2	.859	.916	.825	------	------	------	------	------
Installers, general, grade B	1.5	.847	.899	.895	.781	.688	------	------	------
Power-brake operators, grade B	.2	.843	.916	.883	.825	.813	------	------	------
Tool-crib attendants, grade A	.3	.841	.971	.970	.872	.850	.739	------	------
Milling-machine operators, grade C	.5	.830	.930	.883	.835	------	------	------	------
Painters, aircraft, grade B	.4	.815	.932	.930	.890	.876	.600	------	------
Inspectors, assembly, general, grade C	.9	.814	.876	.833	.818	.742	.702	------	------
Jig builders, assembly, metal, grade C	1.1	.809	.877	.876	.825	.820	.796	------	------
Spot welders, grade B	.3	.809	.897	.832	.764	------	------	------	------
Punch-press operators, grade B	.4	.802	.833	.820	.814	.720	------	------	------
Sheet-metal workers, bench, grade C	2.3	.794	.848	.832	.809	.791	.572	------	------
Inspectors, receiving, grade C	.3	.790	.857	.820	.691	------	------	------	------
Clerks, shipping and receiving	.4	.783	.842	.820	.812	.775	.774	------	------
Inspectors, detail, grade C	.3	.766	.832	.830	.825	.813	.633	------	------
Field and service mechanics, grade C	.2	.760	.825	.757	------	------	------	------	------
Clerks, stock and stores	2.5	.758	.881	.820	.795	.752	.750	.750	.571

TABLE 3.—*Average Hourly Earnings of First-Shift Workers in Eastern Airframe Plants, by Length of Training Period and Occupation, April 1942*—Continued

Length of training period and occupation	Percent of total selected employees	Average hourly earnings	Individual plant averages in descending order of average						
6 months and under 1 year									
Assemblers, electrical and radio, bench, grade B	0.3	$0.902	$0.927	$0.820					
Anodizers, grade A	.2	.887	.917	.889	$0.883				
Tube benders, bench, grade B	.2	.859	.890	.871					
Saw operators, grade A	.3	.859	1.054	.954	.900	$0.863	$0.775		
Router operators, grade A	.2	.835	.937	.911	.825	.817	.750		
Installers, electrical, grade C	.3	.833	.844	.825					
Drill-press operators, grade B	.4	.828	.857	.826	.817				
Welders, gas (aluminum and steel), grade C	.2	.822	.827	.817					
Electricians, maintenance, grade C	.2	.817	.835	.807					
Craters, grade B	.3	.814	.839	.810	.808				
Drop-hammer operators, grade C	.3	.799	.798						
Riveters, grade B	4.6	.789	.857	.832	.826	.805	.775	$0.767	$0.583
Tool-crib attendants, grade B	.6	.772	.855	.831	.830	.775	.752		
Metal fitters, grade C	.9	.769	.867	.847	.778	.572			
Painters, aircraft, grade C	.8	.767	.880	.829	.789	.763	.763		
Bench machinists, grade C	1.4	.762	.882	.867	.816	.775	.756	.753	.620
Assemblers, precision, bench, grade C	2.4	.757	.775	.755					
Assemblers, general, grade C	8.2	.755	.852	.841	.806	.775	.748	.554	
Carpenters, maintenance, grade C	.2	.750	.838	.803	.718				
Guards and watchmen	1.2	.746	.836	.805	.794	.775	.756	.705	.538
Installers, general, grade C	1.4	.742	.804	.775	.723	.563			
Less than 6 months									
Saw operators, grade B	.4	.792	.798	.797	.775				
Anodizers, grade B	.2	.783	.807	.800	.767	.736			
Janitors	1.5	.729	.768	.760	.752	.750	.735	.727	.529
Laborers	1.3	.727	.803	.788	.733	.712	.707	.517	
Helpers, general	1.8	.717	.800	.775	.775	.741	.686	.613	.544
Punch-press operators, learner	.3	.709	.700	.660					
Drill-press operators, grade C	.3	.708	.783	.700	.662				
Jig builders, assembly, metal, learner	.3	.705	.750	.675					
Truckers, hand and warehousemen	1.0	.702	.744	.719	.700	.698	.667		
Craters, grade C	.3	.681	.667						
Assemblers, general, learner	4.0	.663	.710	.667	.663	.656	.644		
Sheet-metal workers, bench, learner	.7	.662	.676	.653	.627				
Drill-press operators, learner	.4	.658	.708	.615					
Inspectors, assembly, general, learner	.2	.653	.660	.657	.633				
Tube benders, bench, learner	.2	.652	.670	.638					
Installers, general, learner	1.1	.645	.648	.641					
Riveters, learner	1.4	.629	.711	.641	.634	.627	.600	.500	
Painters, aircraft, learner	.2	.614	.627	.612	.610	.600			

AVERAGE HOURLY EARNINGS IN THE EASTERN AND CALIFORNIA REGIONS

Table 4 presents the average hourly earnings of first-shift workers in eastern and California airframe plants. Data are shown for each occupational grade for which 50 or more employees were reported at the time of the study. The averages shown for California are those in effect in December 1941; those presented for the East reflect an April 1942 period. The validity of the comparisons is not seriously impaired by the 4-month difference in time. A wage report covering most of the California airframe plants, compiled by one of the major western frame manufacturers, reveals little change in the wage levels for that area since December 1941—the average portraying an increase of less than 1 cent an hour. A comparison of the averages for specific occupations likewise shows little significant change. Changes in the occupational averages were divided almost evenly between increases and decreases, and the bulk of the differences were of an unimportant character. Thus, 35 percent of the occupational averages available

for California plants were within 1 cent, 50 percent within 2 cents, 62 percent within 3 cents, 74 percent within 4 cents, and 82 percent within 5 cents, of the averages established for December 1941. Only 18 percent of the occupational grades showed a change in one direction or another of 5 cents or more.[3]

TABLE 4.—*Average Hourly Earnings of First-Shift Employees in Airframe Plants by Occupation and Region, December 1941 and April 1942*

Occupation and grade	East coast, April 1942	California, December 1941
All employees	$0.841	$0.829
Assemblers, electrical and radio, bench, grade B	.902	.773
Assemblers, general, grade A	.995	.992
Assemblers, general, grade B	.884	.845
Assemblers, general, grade C	.755	.770
Assemblers, general, learner	.663	.711
Assemblers, precision, bench, grade A	1.058	1.069
Assemblers, precision, bench, grade B	.916	.890
Assemblers, precision, bench, grade C	.757	.808
Bench machinists, grade C	.762	.775
Carpenters, maintenance, grade A	1.010	1.059
Clerks, shipping and receiving	.783	.732
Clerks, stock and stores	.758	.765
Coverers, fabric, grade A	.860	.783
Drill-press operators, grade A	.887	.761
Drill-press operators, grade B	.828	.818
Drill-press operators, grade C	.706	.698
Drill-press operators, learner	.658	.669
Electricians, maintenance, grade A	1.063	1.169
Electricians, maintenance, grade B	.851	1.051
Electricians, maintenance, grade C	.817	.836
Engine-lathe operators, grade A	1.043	1.143
Engine-lathe operators, grade B	.939	.854
Field and service mechanics, grade B	.969	.907
Guards and watchmen	.746	.773
Helpers, general	.717	.698
Inspectors, assembly, final, grade B	.965	.895
Inspectors, assembly, final, grade C	.818	.810
Inspectors, assembly, general, grade A	1.010	1.039
Inspectors, assembly, general, grade B	.916	.939
Inspectors, assembly, general, grade C	.814	.835
Inspectors, assembly, general, learner	.653	.816
Inspectors, detail, grade B	.831	.882
Inspectors, detail, grade C	.766	.767
Inspectors, templates, tools and dies, grade A	1.162	1.216
Installers, electrical, grade C	.833	.758
Installers, general, grade A	.948	.966
Installers, general, grade B	.847	.834
Installers, general, grade C	.742	.759
Installers, general, learner	.645	.670
Installers, power plant, grade A	.985	1.007
Installers, power plant, grade B	.859	.861
Janitors	.729	.734
Jig builders, assembly, metal, grade A	1.123	1.103
Jig builders, assembly, metal, grade B	.897	.950
Jig builders, assembly, metal, grade C	.809	.849
Laborers	.727	.713
Lay-out men	.926	.747
Mechanics, maintenance, grade A	.999	1.067
Mechanics, maintenance, grade B	.928	.951
Metal fitters, grade A	1.076	1.085
Metal fitters, grade B	.931	.863
Metal fitters, grade C	.769	.836
Milling-machine operators, grade A	1.135	1.153
Milling-machine operators, grade B	.972	.901
Milling-machine operators, grade C	.830	.792
Painters, aircraft, grade A	.865	.972
Painters, aircraft, grade B	.815	.783
Painters, aircraft, grade C	.767	.771
Painters, aircraft, learner	.614	.712
Pattern makers, wood, grade A	1.188	1.352
Punch-press operators, grade B	.802	.817

[3] Among the occupations displaying substantial changes were assemblers, precision, bench, A, minus 5.4 cents since December 1941; engine lathe operators, B, plus 11.7 cents; inspectors, assembly, general, A, minus 6.3 cents; tool-crib attendants, B, plus 7.8 cents.

TABLE 4.—*Average Hourly Earnings of First-Shift Employees in Airframe Plants by Occupation and Region, December 1941 and April 1942*—Continued

Occupation and grade	East coast, April 1942	California December 1941
Punch-press operators, learner	$0.709	$0.732
Riveters, grade A	.904	.841
Riveters, grade B	.789	.772
Riveters, learner	.629	.677
Saw operators, grade A	.859	.867
Saw operators, grade B	.792	.810
Sheet-metal workers, bench, grade A	1.039	1.047
Sheet-metal workers, bench, grade B	.903	.904
Sheet-metal workers, bench, grade C	.794	.806
Sheet-metal workers, bench, learner	.662	.692
Spot welders, grade B	.809	.833
Tool and die makers, grade A	1.252	1.281
Tool and die makers, grade B	1.087	1.042
Tool and die makers, grade C	.940	.918
Tool-crib attendants, grade A	.841	.862
Tool-crib attendants, grade B	.772	.699
Truckers, hand and warehousemen	.702	.703
Tube benders, bench, grade B	.859	.785
Tube benders, bench, learner	.652	.709
Turret-lathe operators, grade A	1.124	1.066
Turret-lathe operators, grade B	.963	.946
Welders, gas (aluminum and steel), grade A	1.093	1.262
Welders, gas (aluminum and steel), grade B	.891	1.012
Welders, gas (aluminum and steel), grade C	.822	.785
Working supervisors, productive	1,081	1,119

Hourly earnings in eastern airframe plants averaged 84.1 cents in April 1942, or only 1.2 cents more than the average prevailing in the California establishments in December 1941. This comparatively small difference in average earnings is quite typical of the history of the rate movements in the two areas. As shown by the following tabulation, which presents regional averages for each 3-month period since December 1940, a movement of the average in one area is generally followed by a corresponding adjustment in the other. The California and eastern averages paralleled each other very closely from December 1940 until December 1941, when the effect of a series of upward revisions in the California plants in the fall of 1941 became apparent and raised the California average 5.5 cents above the eastern level. However, the rate adjustments instituted by the eastern establishments in early 1942 were sufficient to reestablish parity.

Average hourly earnings

Month	East (cents)	California (cents)
December 1940	71.3	74.1
March 1941	74.2	76.0
June 1941	79.3	77.8
September 1941	83.7	81.5
December 1941	85.8	91.3
March 1942	93.3	92.6

As might be expected from the relatively small difference in the regional averages, table 4 reveals a close correlation between the average earnings of east and west coast employees in a single occupation. In a few instances, notably electricians, pattern makers, lay-out men, and welders, very substantial differences appear. For most occupational grades, however, the average earnings of the workers in the two areas follow each other very closely, somewhat more than one-third being less than 2 cents apart, and nearly three-fourths displaying a difference of less than 6 cents.

MOBILIZATION OF INDUSTRY AND LABOR IN GREAT BRITAIN

ARTICLES in earlier issues of the Monthly Labor Review have dealt with various measures taken by Great Britain in its efforts to mobilize industry, labor, and other resources of the country for war purposes. The present article, which is an abbreviation of a report issued by the British Information Services, coordinates and brings up to date these and other related measures.

Governmental Organization of War Production

THE FRAMEWORK

The course and character of the war have forced the Government of Great Britain to intensify its control of war production, and to make serious changes from time to time in the production system which it devised. Apart from constant discussion of production problems in the press and Parliament, the Select Committee on National Expenditure (appointed by the House of Commons) conducts detailed surveys, and issues reports, with recommendations that are considered by the Government departments concerned. A recent report of the Select Committee (1941–42, H. C. 76) entitled "The Organization of Production" is of exceptional value in surveying the problems that have been encountered in Great Britain.

Until recently, production was directed by a Production Executive under the War Cabinet. The Minister of Labor and National Service (Mr. Bevin) was chairman of this committee, the other members being the Minister of Supply, the Minister of Aircraft Production, the First Lord of the Admiralty, the President of the Board of Trade, and the Minister of Works. There were four main committees under the Production Executive: 1. Central Joint Advisory Committee (consisting of 12 representatives of employers' organizations and 12 representatives of the trade-unions, advising the Production Executive on all general questions of industry and labor); 2. Industrial Capacity Committee; 3. Manpower Committee; 4. Works and Buildings Committee.

Decentralization of the handling of production problems was achieved through the work of 11 regional boards. These boards had grown out of the area boards of the Industrial Capacity Committee of the Ministry of Supply, but had been given much wider scope. Each board, as reconstituted in July 1941 was made up as follows: 1. Three representatives of employers and three of trade-unions, the chairman and vice chairman being taken from these groups. 2. Representatives of the Admiralty; the Board of Trade; the Ministries of Labor, Supply, Aircraft Production, War Transport and Works and Building; and the chairman of the Machine Tool Area Committee.

The boards were given the responsibility of dealing locally with questions of raw materials, transport of workers and goods, concentration of industry, factory accommodation, exchange of machine-tool capacity, the overloading of individual firms, and the expansion of production. Each board worked through (1) an executive committee consisting of representatives of the Government departments, with a

chairman and vice chairman, one an employer, the other a worker; (2) capacity clearing centers dealing with areas smaller than the regions. The work of each center was divided still further by means of district advisory committees, composed of technical officers of the Government departments, with representatives of employers and workers. These committees dealt directly with the production committees in individual factories.

RECENT CHANGES

On March 13, 1942, Mr. Churchill announced an important change in the production system. Mr. Oliver Lyttelton was to be "responsible for the duties hitherto discharged by the Production Executive, including the settlement of production priorities, the work of the regional boards, and the allocation of all industrial capacity, except shipyard capacity." Mr. Churchill added that Mr. Lyttelton would direct the work of the British representatives on the combined bodies set up in Britain and the United States, and would organize, in cooperation with the Dominions and Empire Governments, the general plan for the production of raw materials, machine tools, and finished munitions in the Empire.

In a statement to the House of Commons on March 23, the new Minister of Production described his plans in detail. He said that he had been given actual control of two ingredients of war production —raw materials and machine tools—and would cooperate with the Minister of Labor in controlling the third ingredient—labor. He would be "solely responsible for deciding what went in one end of the raw-material department, and for allocating what came out of the other end." The Ministry of Supply would be responsible only for the actual administration of the controls of raw materials. The same general arrangements would apply to machine tools. They would be manufactured and allocated according to a general program laid down by the Ministry of Production, leaving the details of production to the Ministry of Supply.

Mr. Lyttelton stated that the most important part of his organization would be the Joint War Production Staff. This "General Staff of War Production" would run parallel to the main military organization, and would "clamp together" the connections between the three military departments and their supply departments. The General Staff of War Production would be composed of Sir Walter Layton (Chief Adviser on Programs and Planning), the assistant chiefs of staff of the three services, and the highest technical officers of the three production ministries. The object of this organization was to secure "complete fusion between military plans and thought, and production plans and thought." This division would have an intimate relation with the planning of joint efforts with the United States, Russia, and the other United Nations.

Further developments of these plans have since been announced. The Industrial Division of the new Ministry is to deal with all "central" production questions, and to be advised by a panel of leading industrialists and labor experts. Following the recommendations of the Citrine Committee (which reported on May 19, 1942), the former Central Joint Advisory Committee of the Production Executive is to be replaced by a more active National Production Advisory Committee, composed of 11 representatives of the regional boards, 6

employers, and 6 trade-unionists. Decentralization will be stimulated by appointing full-time directors as chairmen of the regional boards, with wide powers.

War Industries

Ownership of war production plants may be divided into three main groups:

1. Royal ordnance factories built, owned, and operated by the Government.

2. Government-owned, privately operated, plants either (a) on a "modified commercial basis," the Government advancing the fixed capital necessary for the construction of the plant, and the contractor applying the working capital and receiving "reasonable" profits on this basis; or (b) on an "agency basis," all outlays being met by the Government, the contractor receiving fees for construction and management, based on a percentage of cost and output respectively.

3. Privately owned plants. The Government has encouraged expansion in the following ways: (a) By permitting certain essential firms (a small number) to raise money, in the capital market. (b) By indicating to the banks that they should facilitate credit to essential undertakings. (c) By granting greatly increased allowances for amortization of plant and natural resources in the computing of costs of production and tax rebates, and by giving guaranties with reference to Government purchases of goods, now and later.

SMALL FIRMS

Out of a total of 27,000 engineering firms in Great Britain, 26,000 employ less than 500 workers, covering 37 percent of the total engineering labor force. The imperative need to marshal the productive capacity of small firms is greatly stressed in Britain:

> Even where the use of small firms may entail an increase of immediate costs, it may be cheaper to pay for more supplies which can be produced immediately in existing small firms than to practice a false economy in waiting for the output of new and larger units, which might only produce munitions too late. (6th Report: Select Committee, 1939–40.)

Small firms are also found particularly useful for special work involving craftmanship, and for experimenting with new processes. In certain districts, they have the advantage of being able to draw on "immobile labor" (e. g., married women); and small plants, when not actually producing, are useful as training schools for labor. Apart from all these factors, the wide distribution of industrial activity throughout the country is essential for strategic reasons.

For the most part, smaller firms are employed as subcontractors. Many steps have been taken to overcome the difficulties inherent in subcontracting. The tendency of some large firms to accumulate orders and to absorb the plants of small firms, with some delay until reorganization takes place, has been exposed and corrected through criticism in the press and Parliament. The capacity clearing centers, dealing with small regions, watch for and deal with bottlenecks which can be removed through the utilization of small firms. As Government departments do not make contracts with groups of firms, or with an agent on behalf of a group, two methods are adopted to further subcontracting:

1. The "parent firm scheme" (operated by the Ministry of Supply) under which the contract is made with the largest firm in the group, acting as representative for the others, but payment is made separately to each producer.

2. The "embodiment loan scheme" (operated largely by the Ministry of Aircraft Production) under which the Ministry buys completed parts and supplies them to other firms for assembly.

The Government has also developed the use of small firms by arranging for their financial credit to be increased by the banks, and by settling very promptly payments due on account or for work completed.[1]

CONTRACTS

The various types of contract for purchasing war goods from private firms are constantly examined with a view to achieving maximum economy with maximum productivity. The Fourth Report of the Select Committee (1940–41) published in January 1941 enters into a very detailed discussion of contracts, costing and profits. On the basic question of economy, it says:

> The effort to maintain or restore some incentive to cheap production * * * has been disparaged on the ground that output is more important than price, and that attempts to effect paltry economies may seriously disturb the productive organization. The answer to this lies in the relation between costs and efficiency, which experience shows to be so close that maximum output is unlikely to be attained under conditions in which costs are to any considerable extent above the minimum. * * * Maximum output is essential; but if it is to be achieved, the expenditure of national resources, whether in manpower, materials, or capital equipment must be at a minimum for each unit of output; and one indispensable method of bringing this about is to pay the closest attention to sound methods of contract procedure.

It is generally accepted in Britain that contracts of the fixed-price type are to be aimed at, where possible. In the early part of the war there were many occasions when this type of contract was impossible. Urgent repair work (e. g., to ships), the manufacture of new types of goods, production on an unprecedented scale, and the need to allow for sudden changes in production, created a situation in which it often seemed advisable, and even cheaper, to do costing in progress, or after completion. The following types of deferred or adjusted price contracts have been used in Britain: 1. Cost plus a percentage; 2. Cost plus a fixed profit (or management fee); 3. "Cost plus" (1 or 2) subject to maximum price; 4. "Target cost," with a limit of excess over target, and sharing any savings below the target between the Government and the contractor.

All four methods were found unsatisfactory, and have been largely abandoned. None offered any real incentive to efficient, and therefore cheap, production. The first seems even to offer an incentive to expensive production. All four methods suffered, moreover, from the difficulties inherent in any attempt to determine actual and proper costs for specific jobs. In checking costs claimed, special difficulties were encountered because of the variety of costing systems in different firms. Overhead costs were difficult to allot, and certain wage payments gave the impression that labor was not always being used with full economy.

---

[1] The Government has never put forward any scheme of compensation for small firms which have not been able to adapt themselves to the production of war goods.

Speaking to the House of Commons on October 1, 1941, Sir Kingsley Wood, Chancellor of the Exchequer, said:

> I am glad to say that with increasing experience and the decline in the proportion of new types of products required, an increasing proportion of contracts is being let on fixed prices. * * * The House will be glad to be assured that all departments are fully alive to the objections to the other types of contract; that their use is diminishing, and that the fears that there exists here a large area of avoidable extravagance are not justified by the facts.

Even "fixed price contracts," however, are not by themselves a guaranty of economy. Under a perfect competitive system, they supply a clear incentive to economy (assuming that quality is guarded); but in wartime, competition is not completely effective. A constant check on costs of production has therefore to be maintained, not only on firms invited to bid for special work, in which checking of costs by Government accountants is normal, but even on those bidding in "open competition." "Technical costing" is common for certain types of work. Where this may take too long, "spot checks" by Government accountants are recommended. "Post-costing," unsatisfactory as a basis for making payment for work done, is used to obtain figures for Government statisticians. The books of all firms engaged on "essential work" are, under the Defense Regulations, open for inspection by the Government; and costing systems have been simplified and coordinated to provide material for studies on comparative costs.

DETAILED CONTROLS OVER WAR INDUSTRIES

Under the Emergency Powers Act, the Government has specified that it may control (a) the production, storage, distribution, and consumption of all articles, and the price at which they may be sold or hired; and (b) charges for any aspect of essential work.

Many steps have been taken to ensure the employment of machinery, materials, and labor with maximum economy. Censuses have been taken of all types of machinery, and the hours of their utilization. The Machine Tool Control of the Ministry of Supply is strict in removing tools which are not fully employed, and will supply machine tools only to firms working at full pace. The Emergency Machine Tool Armament Corps, a mobile body of more than 200 expert operators and demonstrators, sends men around the country to put into service machine tools that are lying idle. There are rigid controls (described below under "Labor") on all manpower employed in war industries. The regional boards, the capacity clearing centers, the new factory committees, and an active public opinion expressed in the press and Parliament are vigilant in exposing delays, inefficiencies, or bottlenecks. Finally, the Government has the power to appoint a "controller" to manage any business when deemed necessary. It may remove or replace any person with managerial authority "who is acting or has acted in such a manner as to obstruct the authorized control," and to transfer the shares of such a company to nominees at a "fair price."

The railways and merchant shipping have been taken over by the Government for the duration. Road transport is closely controlled.

SOME PRODUCTION RESULTS

On March 24, 1942, Mr. R. Assheton (Joint Parliamentary Secretary to the Ministry of Supply) stated that since September 1941

there had been an increase in production of over 40 percent; that the Ministry of Supply alone had over 40 ordnance factories, employing 300,000 workers; and that in the engineering trades alone, over 1,000,000 workers were working for the Ministry of Supply. On April 14, 1942, Mr. Bevin said that despite all the difficulties, the British had reached an average of 80–85 percent maximum efficiency in munitions production. Sixty percent of the ammunition then being produced was the result of installations set up in the previous 21 months, the remaining 40 percent coming from engineering firms converted from peacetime to war production.

Contraction of Nonwar Industries

At the outbreak of war, rigid controls were instituted over all raw materials. The controllers had to balance the needs of the war industries, the export industries (Great Britain needed foreign currency to pay for essential imports), and industries catering for civilian consumption.

Industries catering for export, or for civilian consumption (and especially the latter) found it increasingly difficult to obtain raw materials, machinery, and labor, and production was therefore greatly curtailed. As a counterpart to "contraction of production," the Government took several steps to restrict civilian consumption of manufactured goods:

1. *Rationing.* This applied in the first instance to certain foods, and only later to manufactured goods (clothing, soap).
2. *Restriction of production* (e. g. automobiles).
3. *"Limitation of Supplies" Orders.* In June 1940, the Government began to issue orders limiting the amount of goods which might be supplied by manufacturers and wholesalers to retailers to a proportion of their purchases in a stated previous period.
4. *Purchase tax.* Instituted in October 1940 at a rate of 16 percent or 33 percent on a wide range of manufactured goods, and raised to 66.6 percent on luxury goods in April 1942.
5. *Increased income tax* and *campaigns for savings.* These absorb increased spending power.

Though production for nonwar industries was greatly contracted in the first 20 months of the war, many of the firms concerned were still carrying on with the same plant, often with considerable manpower working part time. This was felt to be wasteful, and in March 1942, Mr. Lyttelton (then president of the Board of Trade) initiated a new plan for "concentrating production" of civilian and export goods in a reduced number of factories.

The plan was for a number of firms in each industry to select "nucleus" firms to handle all their production. The nucleus firms would be able to work full time (or almost) and would be guaranteed adequate labor and raw materials to cope with the work. The remaining firms would close for the duration of the war, their labor, machinery, and factory space thus becoming available for production of war goods.

When "concentration" was introduced by the Government, industries were asked to formulate their own schemes, the Government reserving the right to apply compulsion as a last resort. The industries had to arrange compensation for those firms obliged to close, as the

Government was unwilling to provide compensation from public funds. It was laid down that the measures taken were intended to be purely wartime schemes, and that the Government would provide facilities for firms which wished to reopen after the war.

The plan, when announced, concerned mainly the group of industries subject to Limitation of Supplies Orders, e. g., hosiery, pottery, the major textile industries, furniture, boots and shoes. Later, it was extended. The number of factories affected was 6,578. Of these 1,400 were considered too small for "concentration"; 2,300 were closed; 650 were on Government work or were not covered by the scheme; and the remainder were left in operation. In July 1939, there were about 1,000,000 insured workers in these industries. By June 1940, when Limitation of Supply Orders were introduced, the number of workers had already declined to 550,000. By April 1941, when "concentration" was introduced, they had declined to 460,000. By April 1, 1942, after 1 year of operation, "concentration" had released 195,560 workers from 31 industries, and it was expected that a further 30,000 workers would be released. Factory space released through "concentration" is allocated by the Board of Trade, which announced in April 1942 that since May 1941, 52 million square feet of floor space had been allocated, one-third for production, two-thirds for storage.

The Scale of the War Effort

THE GROWTH OF WAR EXPENDITURE

The last five annual budgets, presented to Parliament in April of each year, have reflected, to some extent, the scale of the national effort in Great Britain. Data from these are presented in table 1.

TABLE 1.—*Summary of Budgets of British Government, 1938–39 to 1942–43*

[In millions]

Item	1938–39	1939–40	1940–41	1941–42	Estimates, 1942–43
Total ordinary expenditure	£941	£1,325	£3,884	£4,776	£5,286
Direct war expenditure (defense votes)	272	650	3,220	4,085	4,500
Total ordinary revenue	927	1,049	1,409	2,074	2,627
Revenue from taxation	896	1,017	1,359	1,962	2,361

A detailed picture of the manner in which Britain is devoting her maximum resources to the war effort is provided by the White Paper (Cmd. 6347) published in April 1942, and analyzing war finance, national income, and expenditure for 1938, 1940, and 1941 (calendar years). The following striking facts emerge:

1. Public expenditure in Britain in 1941 was equal to (a) 66 percent of the national income; (b) 52 percent of the total resources consumed, including expenditure from capital.

2. Taxes were equal to 40 percent of the national income in 1941.

3. Government expenditure in 1941 was 6.4 times as great as in 1938.

Table 2 gives details on British national income and expenditure in 1938, 1940, and 1941.

TABLE 2.—*National Income and Government Expenditure in 1938, 1940, and 1941*

[In millions]

Item	1938	1940	1941
National income	£4,595	£5,585	£6,338
Expenditure by central government on goods and services at market prices	£833	£3,056	£4,182
Government expenditure as percent of national income	19	54	66

Table 3 shows Government expenditures in their relation to total resources.

TABLE 3.—*British Public Expenditure as Percentage of Total Resources*

[In millions]

Item	1938	1940	1941
Government expenditure (central and local) on goods and services	£833	£3,056	£4,182
Personal expenditure on consumption (plus subsidies, less indirect taxes)	£3,584	£3,871	£3,863
Total expenditure (equal to national income, plus net disinvestment, less excess of indirect taxes over subsidies), or total resources	£4,417	£6,927	£8,045
Public expenditure as percent of total resources	19	44	52

In table 4 are presented data regarding national income and taxation in the years 1938, 1940, and 1941.

TABLE 4.—*National Income and Taxation in Great Britain, 1938, 1940, and 1941*

[In millions]

Item	1938	1940	1941
National income	£4,595	£5,585	£6,338
Total tax liabilities: (a) Direct taxes, war damage contributions; (b) indirect taxes, local taxes, war-risk insurance premiums	£1,194	£1,831	£2,557
Taxes as percent of national income	26	33	40

Organization of Manpower

MANPOWER

In 2½ years of war, Great Britain has taken most drastic steps to mobilize every man and woman to service in the war effort. On May 21, 1942, Mr. Bevin stated that out of a population of 33,000,000 between the ages of 14 and 65, Britain had mobilized 22,000,000 in the armed forces and defense industries, i. e., 2 out of every 3 persons, are engaged in direct war work. Two million more, mostly women, are employed in part-time war work. Yet so great is the need that in April 1942 it was announced that Britain would reduce the civilian defense force by one-third, releasing (it is estimated unofficially) fully 100,000 men and women for other war work.

Until recently, manpower policy was planned by the Manpower Committee of the Production Executive, and handled by Mr. Bevin, Minister of Labor and National Service. Following Mr. Lyttelton's appointment as Minister of Production, it was stated that he would plan manpower policy jointly with Mr. Bevin.

As the British war effort got into its stride, three manpower problems arose: (a) How to tap fresh sources of manpower; (b) how

to allocate men and women between the armed forces and industry; (c) how to settle manpower priorities within industry itself.

The first problem has been dealt with by taking powers to draft men to military service up to the age of 51, draft women into industry and women of 20 to 30 into military service. The second problem is dealt with mainly on the principle that all men, with or without dependents, have to serve in the armed forces unless their work is essential to the war effort, and they cannot be replaced. The third problem has involved the creation of complicated machinery both in the Ministry of Labor and in other supply departments. These and other problems are dealt with exhaustively in the Select Committee's Report on The Supply of Labor (1941–42 H. C. 75), the first document to give a complete authoritative analysis of Britain's experience in this field.

Apart from the general measures taken to harness manpower, special steps have been taken, especially since May 1940, to insure that there is no wastage of trained personnel. A survey was conducted in August 1940 to ascertain which types of workers could be quickly transferred or retrained for war industries. Panels were formed to interview the "long-term unemployed." Special registrations were conducted to find men who had at any time been engineering workers, coal miners, dock workers, or merchant seamen. A special committee was created to examine the employment of skilled men in the forces.

No detailed figures are published of workers employed in war industries. The unemployment figures are, however, an indication of Britain's success in harnessing her manpower. The following table summarizes some significant figures:

TABLE 5.—*Unemployed in Great Britain on Specified Dates*

Date	Wholly unemployed	Temporarily stopped	Unemployed casual labor
September 1939	1,052,218	227,099	51,611
January 1940	1,219,503	249,723	49,670
December 1941	165,224	13,261	9,869

Unemployment rose rapidly during the first months of the war, owing to the sudden dislocation of industry and trade. The Government met this by extending unemployment-assistance benefits to all who were unemployed through war conditions. The figure of 165,224 unemployed for December 1941 must be regarded as almost the minimum that can be reached, since it includes 30,390 "unsuited for employment" and also any workers moving from job to job and happening to be unemployed on the day the registration was conducted. It is significant of Britain's need for manpower that even this low figure is analyzed by the Seventh Report from the Select Committee in an attempt to discover why it cannot be reduced still further.

REGISTRATION FOR SERVICE

The population of Great Britain is 45,750,000. There are 16,000,000 men and 17,250,000 women between the ages of 14 and 65.

Men between the ages of 18½ and 51 are drafted for military service.

Already registered, 19 to 40 years	6,850,000
Being registered, 18½ to 19 years	70,000
Being registered, 41 to 51 years	2,750,000
Total	9,670,000

In March 1941, it was announced that women of 20 upwards would be successively registered in age groups, interviewed and "directed" (compulsorily if necessary) into useful occupations, if not already usefully occupied, or too fully occupied with domestic duties. By December 1941, over 3,000,000 had been registered and 900,000 interviewed, and women were being transferred into the services of industry at the rate of over 12,000 a week. By March 1942, all women of 20 to 35 had been registered, totaling over 5,000,000, and interviewing was proceeding at a rate of 50,000 a week. By June, the figure was expected to reach 7,000,000 and cover all women from 19 to 41.

The National Service Act of December 1941 extended the Government's control by giving it power to recruit women for compulsory service in the uniformed forces of the Crown or in civilian defense. It was announced that, in the first instance, the power would be applied only to unmarried women of 20 to 30, who number 1,620,000. They are needed most urgently for service in the Auxiliary Territorial Service. But careful selection is exercised. Women already engaged in essential work are not drafted, and the Government may direct women to vital industrial work, instead of to service in defense.

Apart from those in age groups already registered, women have volunteered on a very wide scale to work full time or part time in industries or in occupations in which formerly men predominated. On the 21st of May 1942, Mr. R. A. Butler (president of the Board of Education) stated that 5,500,000 women were working in industry, of whom 1,500,000 have entered war industry since war began. It is found that they are able, after training, to undertake a wide variety of skilled jobs for which men were thought indispensable. As women without domestic responsibilities have now been largely absorbed, attention is increasingly directed to women who, because of household duties, are only able to serve part time. "There are about 11,000,000 women in this class," said Mr. Churchill, "who are our largest reserve for industry and home defense in the future."

Boys and girls of 16 to 18 are required to register through local youth committees and encouraged to join some organization in which they can do useful work.

MOBILIZATION OF SPECIALISTS

Even before the outbreak of war, a central register was set up at the Ministry of Labor to record the qualifications of specialists. University teachers and other persons with special qualifications were invited to submit particulars, and Government departments could apply to the register for suitable persons to fill vacancies. A supplementary register for persons with useful qualifications was set up to help private employers, and later the two registers were combined. All persons with administrative or technical qualifications are now mobilized through the Appointments Department of the Ministry of Labor.

TRAINING FOR WAR INDUSTRY

During the course of the war, Government schemes for training war workers have been greatly extended in scope, though there has been a strong tendency for the courses given to be shorter and more specific. There have been generally two types of training courses for untrained labor; a shorter course usually lasting 3 weeks at an emergency training establishment; and a longer course, normally running for from 3 to 5 months at a Government training center. The training centers, originally set up to give a sound training to the unemployed, have been reduced in number to 24; and in general it has been found useful to extend the practice of giving training in factories, where the trainees are to work, instead of solely in Government training schools.

All suitable persons not already engaged in war work (and not due to be called up under the National Service Acts) are accepted for training. Those over 19 are paid weekly wages during training on a scale not far below the ordinary level of earnings. Young men (16–18) and girls of 18 are accepted for training away from home, and girls under 18 for training in their home area. They all receive adequate allowances covering maintenance, lodging, travel, etc. All trainees who show exceptional ability are kept on for longer courses, and upgrading courses are provided for operatives already working, who show special skill.

EMPLOYMENT OF ALIENS

In August 1940, the Ministry of Labor formed an International Labor Branch to facilitate the employment of friendly aliens, including German and Italian refugees. In June and July 1941, aliens from occupied countries and all refugees registered for employment, and it was found that over 85 percent were already usefully employed. Aliens receive training and are employed under the same conditions as British citizens, subject always to a permit from the Security authorities, which is rarely withheld. To supplement other placing machinery, special employment exchanges have been set up, operated in conjunction with Allied authorities and refugee organizations. Aliens are allowed to join British trade-unions, through foreign trade-union groups. An aliens' central register is kept for those with special qualifications.

Conditions of Employment

RESTRICTIONS ON ENGAGEMENT

In June 1940 steps were taken to prevent competitive bidding among employers for skilled workers. An order was issued providing that workers in certain essential industries could be engaged only through local employment exchanges of the Ministry of Labor. This was later extended to cover also women aged 20 to 30, except for certain specialists.

THE "ESSENTIAL WORK ORDER"

The Essential Work Order, first introduced in April 1941, and followed by a lengthy list of special orders applying its principle to

particular industries, has achieved a revolution in British industrial life. The order provides—

1. That in all undertakings engaged in "essential work," standards of wages and employment, not less favorable than those agreed upon between trade-unions and employers' associations, are to be observed, and a high standard of welfare is to be maintained.

2. That in any undertaking registered as "essential," every worker is to receive a guaranteed minimum wage as long as the worker is capable of and available for work, during normal working hours.

3. That no worker may give up his job and no employer may discharge a worker (except for serious misconduct) without the permission of a National Service Officer of the Ministry of Labor, subject to a right of appeal by either party to a local committee on which the workers and employers are represented.

An amending order provides that scheduling as "essential" may be in respect of specified persons, and not all the employees of an undertaking. It also permits suspension by the employer without pay for not more than 3 days, on disciplinary grounds, with a right of appeal granted to the worker.

By October 1941, 19,000 undertakings had been scheduled under the various orders, including establishments in the merchant navy, coal mining, building and civil engineering, iron and steel industry, dock labor, agriculture, railways, shipbuilding and repairing, and cotton manufacturing. By May 1942, 6,500,000 workers were covered under the Essential Work Orders.

MERCHANT SEAMEN, DOCK WORKERS, AND MINERS

Merchant seamen, dock workers, and miners are covered under the Essential Work Orders, but other special wartime measures have also been taken to control their employment. All merchant seamen are guaranteed permanent employment. When not at sea, they are absorbed in a "pool" with a guaranteed retaining wage. Dock workers have also been organized into a regular mobile force with a guaranteed weekly retaining wage. Miners receive an attendance payment apart from their wages.

COMPULSORY PART-TIME CIVIL-DEFENSE DUTIES

All men and women between 16 and 60 are liable to serve a maximum of 48 hours a month in compulsory civil-defense duties. In vulnerable areas, men between 18 and 60 have to serve as part-time fire watchers. Fit men of 18 to 51 can be drafted where needed to train and serve in the Home Guard, and may volunteer up to the age of 65.

HOURS OF WORK

Except in the mining industry the hours of labor of adult men in Great Britain are limited not by law but by agreements between trade-unions and employers' associations. The maximum hours of women and young persons (14–18) are prescribed by the Factory Acts. Before the war, the basic working week for men was about 47–48 hours, with certain restrictions in trade-union agreements as to the number of hours overtime that might be worked. Women and young persons were forbidden by the "1937 Act" from working

more than 48 hours a week, except with specific permission from the Home Office. During the war, trade-unions have agreed to suspend overtime limits (with a continuance of the customary rates of overtime pay), and permission has been granted for women and young persons to work longer hours where it proves necessary on national grounds, subject to the preliminary approval of the Factory Inspectorate and to recommendations as to maximum hours, mentioned below.

The greatest expansion of working hours took place after Dunkirk in May 1940, when a national appeal was made for an intense spurt in production. "Where the normal working week had been 50 to 55 hours, it was commonly increased to 65, and in some cases to 72 hours a week. Quite obviously, such an effort could not be maintained for any length of time. Output began rapidly to decline at the end of a few weeks, and at the end of 2 months, fell to little above and sometimes lower than that which was obtained before the increase of the length of the working week."

In July 1940, the Ministry of Labor pointed to the dangers of working too long hours, and recommended an immediate reduction of hours to 60 a week, with the ultimate aim of 55–56 hours. A report of the Industrial Health Research Board, published in January 1942, urged that working hours should not exceed, over an extended period, 60–65 for men, and 55–60 for women. It is said that the average working week in Britain at present is about 55–60 hours; and there was a recent report that the Government is to standardize a minimum 52-hour week for industrial workers.[2]

Although in some undertakings efforts are made to keep the factories working 24 hours a day and 7 days a week, it is now accepted as official policy in Britain that it is not generally worth while to arrange for Sunday work except for utility undertakings, rush jobs, maintenance, and repair. The reasons given are that the rotation system necessitated by Sunday work involves very considerable additional labor, and it is difficult to organize. During the week, however, a plant is operated "around the clock" by working 2 long shifts (10–12 hours) or 3 shorter shifts (7½–8 hours). In an increasing number of factories, women with domestic duties are working one short shift (5–6 hours) a day, with every third day off, or on other part-time systems. Steps are taken to give married women special facilities for shopping.

Holidays are regarded in Britain as essential to the health of the worker. The year 1940 was abnormal, but in 1941 the Government urged that workers take the week's vacation with pay which was general throughout industry before the war. The statutory holidays at Christmas and Easter were reduced from 2 days to 1, but the other 2 (bank holidays, 1 day each) were maintained. Care has to be taken to stagger annual vacations and to avoid much travel on other holidays.

WAGES

Wage agreements in Britain are usually based on a normal working week of 47–48 hours, with overtime pay of 1¼–1½, and double pay for Sundays. The Essential Work Order (referred to above) assures workers in "essential undertakings" a guaranteed minimum weekly

[2] This standard was adopted by order of the Minister of Labor, see p. 42.

wage, equivalent to the "normal" weekly wage in that industry. There has, however, been a very considerable extension of the practice of "payments by results" instead of by hours worked.

"Basic wage rates" have been continuously adjusted throughout the war by the normal machinery of trade boards, by industrial councils, the National Arbitration Tribunal or other negotiating machinery, or by cost-of-living (or other) bonuses. In some cases (e. g., engineers, railway men, dock workers) there has been a flat rate increase for all grades. In others (e. g., textile workers) there have been equal percentage increases for all workers. Agreements raising wage rates automatically on the basis of the cost-of-living index cover about 3,000,000 persons. By March 1942, there had been an average increase in basic wage rates of about 27 percent since the outbreak of the war. Actual earnings, which include overtime, had risen by a larger figure.

A survey was made of actual earnings in industry on a day in July 1941, the figures being published in the Ministry of Labor Gazette for November 1941, and compared with a survey of earnings conducted in October 1938. The figures are summarized in table 6.

TABLE 6.—*Increase in Workers' Earnings in Great Britain, by Age Groups*

Worker group	Average earnings in July 1941	Rise in earnings over October 1938
	s. d.	*Percent*
Men, 21 and over	99 3	43
Men under 21	40 7	57
Women, 21 and over	44 4	36
Women under 21	25 2	35
Average	75 5	42

As against a rise in wage rates of 27 percent, and the rise in earnings (over October 1938) of 42 percent, the cost-of-living index (prepared by the Ministry of Labor) has risen since September 1939, by about 30 percent. It has been Government policy to prevent the index from rising beyond this figure, and this has been achieved by subsidizing food (which has only risen 20 percent), controlling prices, and controlling demand through increased taxation, the purchase tax, and rationing.

Government policy on the question of rises in wages was set out in a White Paper (Cmd. 6294) in July 1941 stating that as the cost-of-living index was not being allowed to rise above the present figure, there should be no appreciable further rise in the general level of wages. In this way, an "inflationary spiral" could be prevented. The trade-unions have not fully accepted this view, stating that some rises in wages may still be called for by existing conditions; and wage increases were, in fact, granted to agricultural and engineering workers in December 1941. It is often pointed out that the cost-of-living index is not entirely reliable, since it is based on working-class budgets of 1904, and "it cannot be assumed that the representative family of today will devote its income to the same purposes, and in the same proportions, as that of 1904." (Fourth Report, Select Committee, 1940–41.)

INDUSTRIAL DISPUTES

For many years trade-unions have been universally accepted in Great Britain, in all important industries, as the normal agency for settling conditions of employment, in direct collective bargaining with the employers. At the outbreak of the war, it was decided that this normal machinery for wage bargaining should continue to function. Following Dunkirk, the Consultative Committee, representing employers and trade-unions, agreed that no strike or lock-out should take place until a dispute had been referred to the Ministry of Labor and had not been disposed of or referred to arbitration within 21 days. The Conditions of Employment and National Arbitration Order (July 18, 1940) laid down the conditions of arbitration and established the National Arbitration Tribunal.

The time lost in disputes has not affected industry seriously. In the first 2 years of the war, just over 2,000,000 working days were lost, involving 688,000 workers. Disputes have been mostly brief local outbursts arising out of particular local grievances. The time lost since May 1940 is equivalent to a loss of 1 day per worker every 15 years. By January 1942 only 146 men, 5 women, and 14 firms had been prosecuted for refusing to accept the ruling of the National Arbitration Tribunal.

WELFARE AND MORALE

In May 1940, responsibility for the general welfare of industrial workers was transferred from the Home Office to the Ministry of Labor, which set up a Factory and Welfare Department and appointed welfare officers to deal with welfare outside the factories. Within the factories, attention has been paid to canteens (they are obligatory in all factories with over 250 workers engaged in essential work), lighting and ventilation, medical care, and general welfare. A Government paper on Welfare Work Outside the Factory describes arrangements made for the reception of transferred war workers, their transport, accommodation, food supplies, health, and recreation. The Select Committee's Report on the Supply of Labor (1941–42. H. C. 75) discusses all these questions in considerable detail.

The special problem of looking after the children of mothers doing industrial work has been met by the great extension of the system of nurseries. By April 1942, 500 wartime day nurseries were caring for 20,000 children, and 150 more were being built. Apart from these, residential day nurseries, nursery centers, and play centers are being expanded to care for 88,000 children. It is noteworthy that the Select Committee's report emphasizes that the system of nurseries has distinct limitations in wartime, and recommends that children be cared for more in private groups.

The morale of industrial workers has been very high, despite the difficulties of working under black-out, bombing, transport congestion, food shortages, and separation from families. The various spurts in production caused by particular appeals (e. g., Russia Week) have been less important in net results than the steady intensification of effort, based on consciousness of the value of the work, and removal of founded or unfounded grievances concerning political or industrial questions. Lecturers, and particularly men on active service, are sent to the factories, and charts are displayed in factories showing the results of work done.

Cooperation of Labor

Throughout the war there has been, in Great Britain, the closest collaboration among the Government, the employers, and the workers. Leaders of the labor movement hold important posts in the Cabinet, and each of the 12 defense regions into which the country is divided has a representative of the trade-unions assisting the regional commissioner. On every important advisory committee, representatives of the trade-unions sit in equal number with representatives of employers, as the following list (not necessarily complete) shows:

Official body	*Committee on which labor is represented*
Ministry of Production	National Production Advisory Committee.
	Industrial Division of the Ministry of Production.
	Regional boards.
	Capacity clearing centers.
Ministry of Labor	Joint Advisory Council.
	Joint Consultative Committee.
	National Arbitration Tribunal.
	National Joint Council for Dock Labor.
	District manpower boards.
Ministry of Supply	Raw-material controls.
	Cotton Board.
Board of Trade	Industrial and Export Council.
	Central Price Regulation Committee.
	17 area price committees.
	Committee on Retail Trade.
Ministry of Food	Commodity advisory committees.
	Food-control committees.
Ministry of War Transport	Shipping Advisory Council.
	Inland Transport War Council.
	Regional Transport Advisory Council.
	Central Canal Committee.
	Port emergency committees.
Ministry of Agriculture	War agricultural executive committees.
Ministry of Works and Planning.	Reconstructional Panel.
Mines Department	Coal Production Council.
	District production committees.

Within industry itself there has been a considerable growth of joint (employer and employee) machinery for the regulation of wages and working conditions. A list published in December 1941 showed that nearly 30 joint boards, committees, or industrial ("Whitley") councils have been set up since the outbreak of war. It is particularly noteworthy that great progress has been made in establishing voluntary agreements in undertakings which were previously found difficult to organize (e. g., the distributive trades).

A striking development in collaboration has been the recent formation of joint works councils or production committees within the factories. Toward the end of 1941, plans for these committees were submitted by engineering unions through the Central Joint Advisory Committee to the Production Executive. In February 1942, it was announced that the Government had agreed to establish these committees in all royal ordnance factories. All workers over 21 who had worked for at least a year in the industry are eligible to vote for the workers' representatives on the committee, which contains an equal number of men appointed by the management, and is presided over by the superintendent of the factory. The committees discuss all questions relating to production and increased efficiency, but not

matters (like wages) covered by agreements between trade-unions and employers.

At the end of March 1942, it was announced that a similar agreement had been reached to form joint committees in engineering factories, and since then these committees have rapidly spread throughout industry. It has also been stated that the engineering trade-unions have themselves organized production committees in about 100 selected areas to coordinate the operations of the joint workshop committees.

Wartime Policies

52-HOUR WEEK AS MINIMUM IN BRITISH INDUSTRY

A PLANT in which the standard minimum workweek is below 52 hours for industrial labor and 46 hours for clerical labor, with a maximum annual holiday of 2 weeks, is not deemed to be utilizing its employees to capacity, under a ruling of the British Ministry of Labor issued on May 20, 1942. It is not the policy to bring about a general increase in hours of work, or to restrict vacations, but rather to justify transfer of employees to other employment from overstaffed establishments that are not operating on the standard basis. The reduction in plant personnel is to be carried to a point where the staff is adequate to maintain operations on the basis of the standard working time.

Rates of pay for overtime hours of work will continue to be calculated on the basis of standard hours of work as fixed by collective agreements. Factory-act provisions limiting the workweek of women and young persons are not affected, and it is proposed to issue appropriate orders to each establishment having such employees.

The change in policy was made owing to the fact that a number of nonarmament firms were still operating on a peacetime hours schedule. A means of acquiring additional labor from these firms for war work had for some time been under consideration by the Ministry of Labor and the Joint Consultative Committee representing organized employers and workers.

UTILIZATION OF CANADIAN MANPOWER

CANADA has extended its policy of national selective service by a series of Government orders, described by the Prime Minister in the Dominion House of Commons on March 24, 1942. The address was reprinted in the April issue of the Canadian Labor Gazette. As the term is used by the Government, national selective service covers any form of service, either voluntary or compulsory, which contributes directly to Canada's war effort.

Mobilization Method

The Minister of Labor has been assigned the primary responsibility for extending national selective service, with the direction and coordination of the policy vested in a Director of National Selective Service and an Associate Director. The Departments of National Defense (Navy, Air, and Army), Munitions and Supply, National War Services, Pensions and National Health, and Agriculture share in allocating manpower. Work of the participating governmental agencies is to be integrated by the Interdepartmental Committee on Labor Coordina-

tion, which was recently strengthened by granting employers and employees representation on the executive of the National War Labor Board. The National Selective Service Advisory Board is to advise on major questions of policy. This Board is composed of members of the Interdepartmental Committee on Labor Coordination and the complete panel of the National War Labor Board as well as representatives of agriculture and of women, and such other persons as the Minister of Labor may designate.

A constantly changing war necessitates continuous changes in military and production plans and, in turn, involves revision of the estimates of manpower requirements and the allocation of reserves. Therefore, an inventory of manpower is to be maintained through a central registry established in the Department of Labor and based on the records of the Unemployment Insurance Commission and the national registration held in 1940. Employers were ordered to register all employees, whether or not insured against unemployment, with the Unemployment Insurance Commission. All national registration functions and records were transferred from the Department of National War Services to the Department of Labor for the purpose of building up the manpower inventory. Thus, the results of the national registration of all persons over the age of 16 years made in August 1940 and subsequent registers were taken over. The manpower registration of the employed, made through the cooperation of employers, was completed on March 31, 1942. Effective on June 1, men aged 17 to 69, inclusive, who were unemployed on or after May 31 were required to register within 1 week and to renew their registration every 2 weeks during any period of unemployment.

No change was made in the method of recruiting for active service, which remains under the jurisdiction of the defense departments, men being called up for compulsory training under the responsibility of the Department of National War Services. Appeals from the compulsory or restrictive regulations are subject to the decision of the 13 National War Service Boards, and there is a possibility of increasing their number. Employers, employees, farm laborers, as well as interested Government departments have the right of appeal.

To increase the labor available for service in the armed forces and war industry, the following measures will be taken: (1) Acceleration of the program of curtailing civilian production and the shifting of the labor thus released into some form of war service; (2) extension of training, retraining, and upgrading of working forces; (3) reconditioning the physically unfit; and (4) bringing women into industry. Supervisors are to be made available to war industries by a scheme of training for personnel management. A special order provides for the physical reconditioning of recruits who, after they have been called up for compulsory military service, have been rejected for physical reasons. Such a man may be asked to report for treatment to the Department of Pensions and National Health, if he can thereby be made fit for service. During treatment he may be paid $9 weekly if he has no dependents, and $13 a week, otherwise. A similar order makes treatment and the same allowances available to men and women who volunteer for active service in the Canadian army. Provision is made for more effective distribution of scientific and technical experts. Any scientifically or technically trained person who hesitates to move from his regular position into war work, owing

to its temporary character, may now be requested to perform essential work, and the employer must release such a person without prejudice and reinstate him in as favorable circumstances as he would enjoy if he had not left.

The age limit for compulsory service was raised from 24 to 30 years for men who were unmarried on July 15, 1940, and for widowers without children, with selection to be by lot over the entire age range. Liability for military service was extended to all residents of Canada whether citizens or not, instead of being restricted to citizens as formerly. Details of the arrangement could not be announced immediately, as it was necessary to work out reciprocal arrangements with other nations. The only change made in the method of securing postponement from compulsory service was as regards persons wholly or mainly employed in agriculture on March 23, 1942. Arrangements were made to stabilize employment in agriculture by preventing male workers so engaged from entering any employment outside agriculture (excepting the armed forces by voluntary enlistment), unless the worker had obtained written permission from the national selective service officer to enter such employment.[1] At the same time physically fit men of military age were prohibited from entering certain occupations and industries, as for example, clerical occupations, entertainment, and food production.[1] On and after March 23, no male of military age could accept employment in the scheduled occupations and industries unless by permission of the national selective service officer, and employers could not engage a man without obtaining evidence that he was less than 17 or over 45 years of age or that he was honorably discharged or rejected for military service.

The Prime Minister announced that the Government has not hesitated and will not hesitate to apply compulsion where compulsion will serve to increase the total war effort, but that there is no desire to add to governmental machinery unduly—that is, wastefully. Where voluntary machinery works satisfactorily it has been continued, such as voluntary selection, including a measure of choice by the individual of the appropriate field of service. The more expensive and complicated methods of compulsion have been employed only where it was felt they were necessary to increase efficiency. Compulsion "will be applied without fear or favor wherever in the opinion of the Government its use will aid in the achievement of a maximum war effort."

Employment and Labor Requirements

Estimates of employment and manpower requirements were cited by the Prime Minister. Early in 1942, some 600,000 workers were engaged in the production of munitions, with an additional 100,000 needed in the course of the next 12 months. It was expected that 13,000 men would be needed in the navy in the 12 months, 90,000 to 100,000 for the active army, and 70,000 to 80,000 for the air force. In addition, he stated, men would continue to be called up for military service within Canada on a considerably increased scale.

According to the Annual Review of the Employment Situation in Canada During 1941, issued by the Dominion Bureau of Statistics, industrial employment showed extraordinary expansion. Establishments cooperating in the survey added nearly 350,000 employees,

[1] For a fuller description of the order, see Monthly Labor Review for May 1942 (p. 1087).

the largest annual gain recorded. The index of employment in nonagricultural pursuits, based on the 1926 average as 100, rose from 134.2 on January 1, 1941, to 168.8 on December 1, 1941—25.8 percent. Between June 1 and December 1, weekly pay rolls rose 19.6 percent, while the number of employees advanced 10.4 percent. Owing to dilution of labor, which is increasing in importance, the gain in per capita weekly earnings was proportionately smaller than the aggregate pay-roll rise in the 7 months, but increased from $25.25 to $27.32, or by 8.2 percent. The expansion in industrial employment was widely distributed, both geographically and industrially. Employment increased 25.3 percent over the year in the 8 industrial centers—Montreal, Quebec, Toronto, Ottawa, Hamilton, Windsor, Winnipeg, and Vancouver—as compared with 21 percent elsewhere in the Dominion.

From September 1939 to September 1941, nonagricultural employment in Canada increased from 2,307,000 to 3,141,000, according to a study of the Dominion Bureau of Statistics (Recent Expansion of Industrial Employment and Sources of Labor Supply) issued in early 1942. It was concluded that the rate of increase in the number of wage earners over 12-month periods seemed to be approaching stability at approximately 50,000 per month; that is, 51,000 (average) from April–June 1940 to April–June 1941; and 49,000 (average) from July–September 1940 to July–September 1941. The rate of absorption was nearly double that of the early war period—26,000 for October–December 1939 to the same period in 1940.

Workers added by industry seem to be largely engaged in the manufacture of durable goods. For all manufacturing industries, the index of employment advanced from 143.8 to 185.0 in the year ended October 1, 1941; for nondurable goods, it advanced from 147.4 to 172.6 (17.1 percent); and for durable goods from 139.3 to 201.6 (44.7 percent). For every 2 workers added in nondurable-goods industries, 5 were taken on in durable-goods production, with the latter requiring 49.6 percent of total reported manufacturing employees as against 40.2 percent in September 1939 and 44.3 percent in September 1940.

The Labor Gazette (April 1942 issue) shows that the seasonally adjusted index of industrial employment, both manufacturing and nonmanufacturing, was 171.8 on February 1, 1942, and 172.3 a month earlier. The fractional decline from January to February was the first since March 1940 and the second since the outbreak of war. Nonmanufacturing industries accounted for the reduction in employment at the beginning of February, contrasting with expansion in factory employment.

EXTENSION OF UNEMPLOYMENT INSURANCE IN CANADA

A TEMPORARY change in the Canadian Unemployment Insurance Act as a result of the war situation was provided for by an order in council (P. C. 10156) passed on January 7, 1942,[1] which brought under the system workers with yearly earnings above the income limit fixed for compulsory insurance.

[1] Canadian Labor Gazette (Ottawa), January 1942.

The law, enacted in August 1940 and made effective July 1, 1941, provided that persons earning more than $2,000 a year were not insurable. However, by reason of the existence of war, many persons who would not normally be employed at a higher rate were receiving more than $2,000 because of longer working hours, overtime, cost-of-living bonuses, or higher rates of pay. As numerous representations had been made to the Unemployment Insurance Commission requesting the provision of unemployment insurance in such cases, the order provided that the Unemployment Insurance Advisory Committee should investigate and report upon the provision of unemployment insurance for all or part of the employments exempted under the act. Since some time would elapse, however, before such a report could be made, and in the meantime many workers would be excluded from the system and would not make contributions, the order of January 7, 1942, provided that employments specifically covered by the act should be included, subject to the following provisions: If the rate of remuneration exceeds $2,000 a year in value by reason of the payment of a cost-of-living bonus; by reason of an increase in working hours or overtime caused by changed industrial conditions resulting from the state of war; because of an increase in basic wage rates which have come into effect since June 30, 1941; or, in the case of persons paid on an hourly basis, if the basic rate of remuneration does not exceed 90 cents an hour. Also included are any other employments in which the rate of remuneration exceeds the value of $2,000 a year for any reason which in the opinion of the Unemployment Insurance Commission is a result of the state of war now existing.

Insured workers first became eligible for benefit at the end of January 1942. Under the Unemployment Insurance Act a worker is required to have paid at least 30 weekly (or 180 daily) contributions while in insurable employment during the 2 years preceding application for benefit. As contributions under the plan started on July 1, 1941, workers who had contributed consistently were in a position, if unemployed, to claim benefit in the latter part of January 1942. In the first one-half year of the operation of the system, contributions by employers, employees, and the Government amounted to nearly 25 million dollars; 149,185 employers had been registered by December 31, 1941, and employers had requisitioned 2,922,701 insurance books for their employees.

Productivity of Labor and Industry

DEVELOPMENTS AFFECTING PRODUCTIVITY IN COTTON-GOODS INDUSTRY[1]

THE Bureau of Labor Statistics recently undertook to study the effects on productivity of current developments in the production of cotton yarn and woven goods. This field of manufacturing was selected for study for several reasons. First, the cotton-goods industry is an important employer of labor. In the first quarter of 1942, more than half a million wage earners were on the pay rolls of cotton mills, and man-hours were more than 40 percent higher than in the third quarter of 1939, when the war began. Second, the industry has been converting at a brisk pace from the production of civilian goods to the production of war goods. A large proportion of spinning and weaving capacity has already been allocated to cloth of high priority ratings. It is anticipated that subsequent WPB orders will eventually result in the allocation of about seven-eighths of the industry's weaving capacity to war and essential civilian goods. Third, the industry is typical of a number of others with respect to problems of conversion and the maintenance of an adequate work force. Finally, productivity appears to have reached a plateau although production is continuing its unprecedented rise.

Productivity in the cotton-goods industry, as measured by an annual index, increased more than 50 percent between 1929 and 1940.[2] In order to study more recent changes, a quarterly index of productivity, based on current reports of cotton consumption and man-hours worked in cotton mills, was constructed (see table). This series indicates that the upward trend in productivity continued through the first quarter of 1941. Since then, however, the index has shown no significant change in level.

Because of the nature of the underlying production series, the behavior of the quarterly productivity index is especially significant.[3] As a result of the conversion to heavier goods occurring in response to war demands in the last year, a weighted index based on actual production should be lower than the one shown.

To appraise the factors currently influencing productivity levels, a representative of the Bureau of Labor Statistics recently visited a number of cotton mills in both the North and the South. The following discussion, based principally on field reports covering about 80 mills, is carried on in terms of the kind of productivity index available—that is, cotton consumption per man-hour.

[1] This article, based mainly on a field survey made by Arthur W. Frazer, was prepared by Irving H. Siegel and Celia Star Gody under the general direction of W. Duane Evans, Chief, Productivity and Technological Development Division.

[2] U. S. Bureau of Labor Statistics, Productivity and Unit Labor Cost in Selected Manufacturing Industries: 1919–1940, Washington, February 1942.

[3] The production index used in the derivation of the annual productivity series is a weighted measure based principally on the quantities of cotton cloth and yarn produced as reported by the Census of Manufactures.

Quarterly Indexes of Production, Man-Hours, and Productivity in the Cotton-Goods Industry [1]

[1939=100]

Year and quarter	Cotton consumption	Man-hours	Cotton consumption per man-hour
1938:			
First quarter	74.2	79.0	94.0
Second quarter	69.4	74.5	93.3
Third quarter	83.5	87.8	94.9
Fourth quarter	92.4	96.4	95.9
1939:			
First quarter	98.2	98.3	100.0
Second quarter	93.7	93.5	100.3
Third quarter	96.5	98.1	98.3
Fourth quarter	111.6	110.1	101.4
1940:			
First quarter	109.8	104.2	105.4
Second quarter	99.0	93.3	106.1
Third quarter	100.8	97.1	104.0
Fourth quarter	119.5	111.9	107.0
1941:			
First quarter	131.5	119.1	110.6
Second quarter	140.2	128.4	109.3
Third quarter	141.1	131.4	107.4
Fourth quarter	145.9	134.3	108.7
1942:			
First quarter	152.2	139.8	109.0

[1] The figure for each quarter is an average of monthly relatives. The production measure was derived from monthly census figures for raw-cotton consumption (in bales), corrected to exclude cotton distributed for mattresses through the Surplus Marketing Administration, and adjusted to conform to an index based on biennial census quantity statistics. The index of man-hours is based on Bureau of Labor Statistics series on employment and average weekly hours, and adjusted to conform to biennial census levels. The productivity index is the quotient of the production and man-hours series adjusted to yield an average of 100 for 1939.

Factors Influencing Productivity

The increase in cotton consumption per man-hour beginning with the expansion of production late in 1938 appears to have resulted principally from the shift to coarser yarns for army goods, fuller utilization of capacity, and minor improvements in carding and spinning techniques. The forces making for an increase in productivity have, however, been counteracted by difficulties of augmenting the work force with adequately skilled operatives. The labor-supply problem apparently is gaining in importance and may ultimately outweigh all other factors determining productivity levels.

CONVERSION TO COARSER YARNS

Conversion has significantly altered the composition of the industry's output, favorably affecting productivity as computed from an unweighted production index. Almost all producers of combed and carded yarns have converted to the manufacture of coarser varieties to the extent permitted by the size of their spinning rings and the degree of balance of their equipment. The production of coarser goods involves fewer operating hours of spinning equipment and fewer man-hours of spinning labor for a given weight of yarn. Thus, spinning frames making No. 8 yarn can produce three times as much as do frames spinning No. 20 yarn. The production of coarse yarn, moreover, sometimes permits the elimination of one or more of the roving operations preparatory to spinning.

In weaving mills and in weaving departments of integrated mills, conversion has meant the substitution of cloth of heavier yarns and simple construction. Coarse cloth, which has fewer picks (filling

threads) per inch, is produced more rapidly than fine goods. When cloth of simpler construction is woven, there is less likelihood of loom stoppage to repair smashes (broken threads, etc.) and damaged cloth. This shift also makes it possible not only to use less skillful weavers but also to increase the number of looms tended by a worker without sacrifice of quality. This fact is of some importance in view of the shortage of weavers and loom tenders. Productivity is also affected favorably by the magnitude of the war orders for standardized goods.

At the same time, military specifications and requirements on strength of yarn and quality of cloth frequently are higher than commercial standards. Moreover, military demands have been heaviest for combed yarns, which require an extra process in their manufacture. The picture is thus not one simply of conversion to goods requiring less labor in manufacture.

FULLER UTILIZATION OF CAPACITY

The increase in production since the beginning of the war has tended to raise productivity by reducing the maintenance and other auxiliary labor per unit of output on each shift. Almost all available spindles are now in operation. Statistics compiled by the Bureau of the Census show that 96 percent of all spindles in place at the end of March 1942 were active at some time during that month. Operating hours in each shift have also increased substantially, but, for reasons that will be given in the subsequent discussion, productivity need not have increased on this account. Most mills, traditionally on two-shift operation, have added third shifts in some or all departments. The progress toward fuller utilization of capacity may be indicated by the fact that average weekly operating hours per active spindle were 111 during the first quarter of 1942, in comparison with 102 during the year 1941, 84 in 1940, 80 in 1939, and 66 in 1938.

Mere reference to the utilization of spindles may conceal the obstacles to maximum operation of all departments on three shifts. Full utilization is dependent on the "balance" of the equipment in the various departments of the mill—namely, carding, spinning, and weaving. In the carding department, raw cotton is transformed into a coarse yarn called "roving"; in spinning, the roving is drafted into yarn and strengthened by twisting; and in the weaving department, the threads are combined into finished cloth. The carding equipment of many plants is insufficient, when operating two shifts, to supply enough roving for two-shift spinning. Consequently, even when a spinning department operated on the customary two-shift basis, it was not uncommon for the carding department to operate part or all of a third shift. The relative amounts of spinning and carding equipment required to run both departments the same number of hours depend on the size of the yarn produced. When all equipment can be operated the same number of hours per week on a given range of yarn-counts, the mill is in balance for that range. A change in the size of yarn, however, may throw the mill out of balance. To produce finer yarn taxes spinning equipment; to produce coarser yarn taxes carding equipment. The relation between spinning and weaving equipment for different kinds of yarn is similar to that between carding and spinning equipment.

Conversion to war production causes some complication, inasmuch as the coarse yarns needed in greater quantities require relatively more

carding equipment for a given spindle capacity than do fine yarns. That is, a greater poundage of cotton must be processed in the carding department per operating hour of spindle equipment. The general transfer to coarse yarns has thrown some mills out of balance and exaggerated the unbalance already existing in others. Capacity to produce finished goods is thus limited by the amount of carding equipment rather than by the number of spindles and looms.

IMPROVEMENTS IN CARDING METHODS

The limitations of carding equipment have, in general, restricted the third shift in spinning to 20–40 hours a week; and, frequently, some of the spindles and looms remain idle during this shift. In a group of combed-yarn mills in the South, for example, the carding department operates three 48-hour shifts; the spindles run two full shifts of 40–48 hours, and some of the spindles run a third shift of less than 40 hours. Two Southern mills, producing twills and osnaburgs, have increased general operation from an 80-hour week to a 90-hour week. In one of these mills, carding machinery is operated a third shift; in the other, the unbalance is reversed and spinning equipment must be run a third shift. In both mills, however, looms run only two shifts. In a colored-yarn fabric mill in which carding and spinning equipment were once in balance for the two-shift operation of looms, the carding machinery now runs three 48-hour shifts, the spinning equipment operates the equivalent of slightly more than two 40-hour shifts, and looms operate the equivalent of about two 48-hour shifts. Two mills producing a variety of goods now run cards 143 hours and spindles and looms about 80 hours. Finally, a mill producing denim and tent goods now operates carding equipment three 56-hour shifts and spinning equipment three 48-hour shifts. All looms operate two full shifts, and some are idle during the third. Near balance was achieved in this mill by speeding up the carding machinery.

One of the many attempts to break the carding bottleneck involves the speeding up of existing equipment. In some instances, the speed of carding cylinders has been raised from the conventional 165 revolutions per minute to as high as 200. The extent to which machinery can be accelerated depends on its condition and on the quality and size of the yarn to be produced. Most mill managers feel that machine speed-up can be achieved only at the expense of strength and quality of yarn. Contrary experiences have, however, been reported in recent trade literature.

Productiveness of available equipment has also been increased by the feeding of more cotton into the carding machine, which continues to operate at its usual speed. The increased flow of cotton through the machine is made possible by the widening of the gap between the carding cylinder and the wire-covered flats through which the cotton sliver feeds. In some cases, the weight of the sliver has been increased by as much as 50 percent, though with some loss in quality.

Still another method of increasing the efficiency of carding equipment is the use of long-draft spinning. In the conventional type of spinning, there are a number of preliminary draftings on roving frames according to the size of the yarn desired. Heavy yarns require one or two, while finer yarns require as many as four. The introduction of long-draft spinning has eliminated one or more of the preparatory roving operations in the carding department. Some members of the

industry believe that long-draft spinning produces a yarn of superior quality in addition to raising productivity. By various methods, the output of carding machines has been increased from the customary 8–10 pounds per hour to 12–15 pounds and, in some instances, even to 18 pounds. Improvements have also been made in spinning. For example, spindle speeds have been increased. Long-draft, large-package spinning, which requires less attention, has been adopted extensively in recent years.

NEW WORKERS

The expansion of production has required a considerable increase in employment. Between the third quarter of 1940 and the first quarter of 1942, employment increased by 26 percent. Many of the new employees work on the third shift, which has been widely adopted in recent months. New workers have been obtained from a variety of sources. Spare hands and other reserve labor have been given full-time employment. Substandard workers laid off during NRA and after the passage of the Fair Labor Standards Act have in many cases been rehired. Younger persons in Southern cotton-mill villages, particularly girls, have been hired and trained.

During the early depression years, large reserves of trained workers were available to most cotton mills. In recent years, these workers were absorbed in the mills or found employment in other industries. Consequently, there was only a small reserve of trained labor available when production began its recent advance. Many of the recent accessions, particularly in New England, are learners who are paid either the learners' rate under a wage-hour certificate or the industry minimum. Mill executives everywhere assert that workers recently hired are considerably less efficient than those already on the rolls. In one group of mills in which employment doubled in the past 4 years, one-sixth of the employees are said to be learners or substandard workers.

The influx of new workers into the industry has tended to reduce average productivity. Characteristically, workers entering a plant are placed on the third shift. Under these circumstances, most plants reported that third-shift productivity was at least 10 percent below the level of the other two shifts. In a few plants, where the third shift was established some years ago and manned by experienced workers, it was reported that there was no differential. Productivity on the night shift is also impaired by absenteeism, which is becoming an acute problem. Moreover, mill managers report that relatively more damage to goods occurs on night work.

LABOR TURN-OVER

Another aspect of the labor-supply problem is the increase in the turn-over rate. The effect is to reduce productivity since, no matter how experienced, a worker requires some time to attain his maximum efficiency on a new job. This is especially serious since the cotton-goods industry has always shown a high labor turn-over rate. In 1941, this industry had the second highest quit rate in a group of 42 industries for which data were available.

Labor turn-over appears to be a more serious problem in New England than in the South. The northern mills are located in the midst of expanding war industries paying higher wages, and workers

are leaving the cotton mills for these jobs. In the South, on the other hand, much of the labor turn-over consists of migration from mill to mill. Stability in the South is often enforced, moreover, by the fact that many workers live in the mill village and have other members of the family working in the same mill. In both regions, younger people may attend classes in welding, etc., and leave upon completion of their courses. Young men have also been drifting back to the farm, particularly in the South. Thus far, losses to the armed services have not been great. Migration in the South usually involves third-shift workers seeking employment on the first or second shift. In general, separations occur most frequently among newly hired workers, most of whom have been employed in the mill less than a year.

Of all the sections visited in the course of the Bureau of Labor Statistics survey, the Fall River area seems to have suffered most from the scarcity of suitable labor. From 40 to 75 percent of the production of the 13 mills located here consists of war goods, most of them having priority ratings of A–1–I or higher. The loss of labor is said to have been so great as to force discontinuation of the third shift in at least one mill and the idleness of some equipment in other mills. It is claimed that production has declined to 70–90 percent of the level formerly achieved, as a consequence of the drift of workers to other war industries and the inability of the cotton mills to recruit adequate replacements.

The industry has been trying to solve its labor problems in various ways. For example, employees are upgraded and vacancies in less skilled occupations are filled with newcomers. In some cases, skeleton crews are formed and complemented with inexperienced workers as hired. Sometimes, two untrained or semitrained workers are placed on a job normally filled by one experienced worker. Each employee is finally assigned a full work load when he is deemed capable of handling it. Most mills have customarily maintained classes after work for loom fixers. Similar classes have been introduced in some instances to train employees for jobs in spinning and weaving departments. Another tendency is the employment of relatively more women. Vacancies may now be filled by the upgrading of women to jobs never before held by women in the same mill. Such substitutions, however, have been restricted mainly to the spinning and weaving departments, and to jobs which have always been considered by the industry as suitable for either women or men.

Outlook

Further conversion to war production, which entails an increase in the relative production of heavy yarn and of simple fabrics of maximum loom width, will assist in maintaining efficiency levels. The trend toward heavier cloth of simpler construction might permit more looms to be tended by a worker, but no significant change in current practice is likely—particularly in New England, where work on fine goods has been traditional. No significant increases in productivity are anticipated from fuller capacity utilization. Indeed, there is some feeling in the industry that the point of maximum efficiency has already been reached. The ability of the industry to maintain intact and, if necessary, to expand its work force will probably be the decisive factor in determining the direction productivity will take in the near future.

Fuller utilization of existing facilities will depend largely on the possibility of obtaining additional carding equipment and substantially improving equipment now in place. However, many of the suppliers of textile equipment have converted to the manufacture of war goods, and new machinery will not be generally available for the duration. Even were this not true, the limited floor space available would in many plants make difficult the expansion of bottleneck departments. In any case, universal 7-day, three-shift operation is unlikely. Employees are reluctant to work on Sunday, especially in the South, and the third shift is traditionally unpopular.

The problem of labor turn-over appears destined to become more serious, since many of the normal economic forces causing high labor turn-over in this industry are aggravated by present conditions. The movement into the war industries of workers already employed but without completely transferable skills, rather than of workers presently unemployed, multiplies the training problem. The draft is also likely to make more serious inroads into the labor force than hitherto. The recent change in policy toward the classification of married men may have considerable effect in the South, where it is not uncommon for both husband and wife to work in the mill. The shortage of workers may partly be corrected by the further expansion of training programs and the employment of women in jobs traditionally held by men. There is already a trend toward the relaxation of State labor laws which restrict the employment of women at night.

Transportation difficulties incident to tire rationing may soon become an important aspect of the labor problem in the South. Accommodations in mill villages are generally inadequate for more than a two-shift work force, and rents of such nearby dwellings as are available are usually high. It is stated that no other conveyance than private automobile is available for from one-quarter to one-third of the workers in mills located in rural Southern areas, who come from farms or communities as far as 20 miles away.

PRODUCTIVITY AND TECHNOLOGICAL CHANGES IN THE CHEMICALS INDUSTRY, 1929–40

Summary

DURING the period 1929–40, a 45-percent increase occurred in output per man-hour in the chemicals industry. Weekly hours of work were considerably reduced during the period, however, with the result that output per wage earner advanced only 9 percent. Much of the increase in productivity is attributable to improvements in processes and equipment. These conclusions are based on the new Bureau of Labor Statistics indexes of productivity [1] and a study of technological changes.[2]

[1] The principle followed in the construction of the new production index differs from that followed in the construction of the WPA National Research Project production index and its extension. The extended index (base 1929=100) was shown in the Bureau of Labor Statistics report, Productivity and Unit Labor Cost in Selected Manufacturing Industries, 1919-40 (p. 22).

[2] James M. Silberman, of the Bureau's Productivity and Technological Development Division, prepared the larger report on technological developments from which the material in this article was derived.

Definition of the Industry

For the purposes of this study the chemicals industry was considered to correspond to four industries distinguished in the 1939 Census of Manufactures: chemicals, not elsewhere classified; coal-tar products; compressed and liquefied gases; and plastic materials. The most important component industry—chemicals, not elsewhere classified—manufactures a great variety of products, including organic and inorganic compounds and metals such as ferro-alloys, magnesium, and sodium. Establishments producing aluminum were transferred by the Census to another industry in 1939, but, for the sake of chronological comparability, the original industry definition was retained.

The chemicals industry, which occupies a strategic position in the economy of the United States both in war and in peace, employed only 76,000 wage earners in 1939, the last year for which census data are available. In the same year the value of the industry's products for sale exceeded $1,000,000,000, and well over half of this amount represented value added by manufacture.

Trends in Productivity and Unit Labor Cost

During the period 1929–40, productivity advanced generally, but the rate of increase was lower than in the preceding decade.[3] The net increase in output per man-hour between 1929 and 1940 was 45 percent. As in many other industries where output per wage earner and output per man-hour kept pace with each other before 1929, the divergence between the two series in the interval 1929–40 was notable. The net increase in output per wage earner between 1929 and 1940 was only 9 percent—a fact reflecting the substantial reduction of the length of the workweek between 1929 and 1932.

Both output per wage earner and output per man-hour advanced irregularly. The greatest setback in output per man-hour, 12 percent, occurred between 1933 and 1934, when employment recovered sharply under the influence of NRA. Another severe decline, 9 percent, occurred in the 1937–38 recession. In contrast, man-hour productivity advanced slightly during the earlier deflationary period of 1929–32.

Unit labor cost showed no significant trend. The marked increases in hourly earnings were largely offset by advances in productivity. On only three occasions did unit labor cost exceed the 1929 level: the first was in 1930, at the beginning of the great depression; the second in 1934, when wage rates were raised in accordance with NRA provisions; and the third in 1938, when increases in wage rates raised labor cost 15 percent.

[3] For productivity changes before 1929, see either the Bureau of Labor Statistics report mentioned in footnote 1 or the WPA National Research Project report by Harry Magdoff, Irving H. Siegel, and Milton B. Davis: "Production, Employment, and Productivity in 59 Manufacturing Industries, Part Two," p. 43.

Summary Indexes for the Chemicals Industry, 1929–40

[1937=100]

Year	Production [1]	Employment [2]	Man-hours [2]	Output per—		Pay rolls [3]	Unit labor cost
				Wage earner	Man-hour		
1929	78.4	78.5	103.8	99.9	75.5	80.8	103.1
1930	63.5	71.7	89.4	88.6	71.0	69.7	109.8
1931	57.7	61.4	71.7	94.0	80.5	56.7	98.3
1932	46.6	54.7	58.4	85.2	79.8	43.4	93.1
1933	60.6	66.9	68.7	90.6	88.2	50.4	83.2
1934	62.1	83.1	80.3	74.7	77.3	64.6	104.0
1935	73.9	83.3	82.9	88.7	89.1	68.6	92.8
1936	87.9	89.6	91.0	98.1	96.6	78.5	89.3
1937	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1938	73.1	84.6	80.4	86.4	90.9	84.0	114.9
1939	97.9	91.2	91.2	107.3	107.3	95.4	97.4
1940	114.2	104.5	104.5	109.3	109.3	114.8	100.5

[1] The production index was constructed for the odd-numbered years from census quantity statistics for products varying in number from 39 in 1929 to 51 in 1937. It was completed for the even-numbered years by means of an index for 8 to 10 types of chemicals derived from quantity data reported by the Tariff Commission and in Chemical and Metallurgical Engineering. The weights employed in the census-year and auxiliary indexes are 1939 unit values. In 1937, the base year, the 51 products included in the census-year index accounted for 40.3 percent of aggregate value of the chemical industry's output; the 36 products included in the extended National Research Project index represented approximately the same coverage.

The distinctive feature of the production index presented in this table is the method of selection of the products included in the census-year and auxiliary series. An endeavor was made not only to include representative products of the major census classes (acetates, acids, bases, chlorides, coal-tar products, etc.) but also to obtain class samples having values proportional to the values of the entire groups from year to year. Group indexes were first constructed and then combined with group value weights to yield the final census-year measure. The chemicals included in the auxiliary measure were selected with the intention of giving proportional value representation to the census product groups.

[2] The wage-earner employment and man-hour indexes were derived in the manner described in the WPA National Research Project Report S–1, Production, Employment, and Productivity in 59 Manufacturing Industries, 1919–36, by Harry Magdoff, Irving H. Siegel, and Milton B. Davis, Part Two, p. 42, and in the Bureau of Labor Statistics report, Productivity and Unit Labor Cost in Selected Manufacturing Industries, 1919–1940, p. 23.

[3] The pay-rolls index was derived in the manner described in the Bureau of Labor Statistics report mentioned in footnote 2.

Technological Changes

Progress in technology offers a partial explanation of the 45-percent advance in output per man-hour and the indecisive trend of unit labor cost. Many of the changes, however, were directed not so much toward the reduction of labor cost (which is a less important element of total cost than in many other industries) as toward the reduction of other operating costs (as of raw materials, through increased yields and solvent recovery) and capital costs (through lengthened average life of equipment). In general, the period 1929–40 was characterized by improvements in unit processes, the refinement of techniques, the development of alternative manufacturing processes, improvements in equipment design, construction materials, and auxiliary equipment, and further progress in instrumentation and continuous-production methods.

Recent design of basic equipment has stressed technical refinement, specialization, more efficient lay-out, larger-scale construction, and the utilization of better materials. Among the important construction materials which have come into use are metal alloys, which are superior in many respects to cast iron, lead, and wood—the principal construction materials until the early 1920's. Hundreds of such alloys have been developed, particularly during the last decade, to meet more rigid requirements. They are generally stronger, more stable at extremes of temperature and pressure, and more resistant to corrosion

and abrasion than were the earlier materials. Steel alloys comprise the most important group. Nickel and nickel-copper alloys are used where high-tensile strength and corrosion resistance are desired. Methods have recently been developed to apply metal sheets, rubber, and resin-saturated felt to plain steel surfaces. Multilayer steel vessels have also been devised for high-pressure use. Chemical stoneware and glassware have been considerably improved, and other materials, such as synthetic rubbers and resins and structural carbon and graphite, have been successfully adapted.

The important unit operations have been improved in many ways. For example, cast iron and copper have been replaced in evaporators by nickel, stainless steel, and various alloys. Greater yields and lower losses have resulted from the application of superior evaporating methods of the pressure, forced-circulation, vacuum, and flash types. Significant improvements have also occurred in filtration, which is another important unit process. For example, modern centrifuges possessing new motor drives, chargers, brakes, unloaders, and automatic timers have doubled the number of loads that can be drained in a given amount of time. Semiautomatic and fully continuous operation of centrifuges is now possible. Some savings in labor have been effected through the use of rotary vacuum filters which can deliver filter cake for shipment without need for further drying. In another unit operation—distillation—wider application has been made of measuring and control instruments, which frequently are automatic. Methods of drying have also been improved—for example, by the use of tunnel and conveyor-belt equipment and, in some cases, of semiautomatic rotary dryers. In many instances where spray dryers are used conveniently, the unit operations of concentration, drying, and grinding have been combined into one, with some reduction in labor requirements. Drying of gases by adsorption is now frequently accomplished by the use of new materials such as silica gel, activated alumina, lithium chloride, and (particularly in solvent-recovery systems) activated carbon. Economy in heat transfer has been promoted by changes in equipment design and the development of new transfer mediums having efficient transfer rates, thermal stability, and low corrosive action. Great advances have also been made recently in the new field of high-temperature heat transfer.

Continuation of the trend toward more efficient equipment is evident not only in the new design of basic-process apparatus but also in the improvements made in auxiliary items such as instruments, handling devices, pumps, compressors, vacuum producers, pipes and fittings, valves, and controls. Among recent innovations in electrical apparatus are the development of the mercury-arc rectifier (used increasingly since 1934 for power conversion in electrochemical establishments), the installation of more adequately braced motors with better controls, further displacement of individual-motor drive by group-drive systems, and simplification of various types of speed changers. Many specialized pumps have come into general use in place of reciprocal and centrifugal pumps. In the design of other auxiliary equipment, the trend toward specialization is also evident.

Further progress has been made recently in automatic control and continuous processing. The use of instruments for centralized metering and for the control of the variables affecting processing conditions (e. g., temperature, pressure, flow, and time) has, in some instances, made possible the change from batch- to continuous-production

methods. In general, instrumentation has meant the reduction of unit labor requirements, the elimination of certain skills, the elimination of certain sources of human error, and improved coordination and precision of the production process. An important new method, the automatic-sequence operation of valves by cycle controls, has been applied in a number of plants engaged in solvent recovery, production of plastics, and the manufacture of solid carbon dioxide. Several unit operations, such as vacuum crystallization, centrifuging, and distillation, have been rendered continuous by the introduction of appropriate modifications and controls.

During the last few years, "creative chemistry" has continued to make notable progress. There has been a prodigious development of new products, such as plastics and organic compounds with predetermined qualities. Synthetic processes have gained in importance in the commercial manufacture of acetic acid, methanol, and other chemicals. The last decade also witnessed continued progress in conservation through recovery of chemicals from industrial waste (sulphuric acid, caustic soda, phenol, etc.).

The requirements of our war economy will doubtless stimulate the development of more synthetic processes and products as natural sources of supply become inaccessible or prove inadequate. Already, plants are being built to produce tremendous quantities of synthetic rubber from petroleum and coal-tar derivatives. An extensive chemical-reclamation program is also to be expected. The trends in technology discussed briefly in earlier paragraphs will doubtless continue, and further increases in productivity will also occur. Employment opportunities, however, will expand and probably remain above the pre-war level after the victory is won, for the chemicals industry seems destined to play a still more important role in our peacetime economy.

Employment Conditions

MIGRATION TO WAR-INDUSTRY AREAS

IN CONTRAST with the depression migration of the last decade, in which much of the movement of migrants was over great distances with the prospect of employment at the end problematical, migration during the past 2 years toward centers in which war industries are located has held out much greater hope to the migrants of securing employment. From a survey by the Work Projects Administration, Division of Research, made at the request of the Federal Security Agency, data are now available for 40 of the 51 cities which the investigation covered, providing a large enough sample to show some of the trends of the present migration.

In general, there are four sources of labor supply for factories having large war orders. Workers may be secured from the existing supply of unemployed workers, through transfer of workers engaged in other pursuits in the locality, from persons who are ordinarily not employed but who are induced to enter the labor market by the prospect of high wages, and from the supply of migrant workers who have been drawn to the area by reports that jobs are available and good wages are being paid. Conditions vary in the different defense areas in regard to the local labor supply. In some cases there is an ample supply, while in others, such as the sites of large construction jobs and the rapidly expanding shipbuilding and industrial towns, the resident supply is inadequate. Priorities unemployment, added to the existing unemployment in many areas, is a force which increases the total volume of movement. This defense migration has been brought forcefully to public attention by the large numbers of construction workers who have been massed in isolated army-camp and powder-plant towns.

Defense migration raises increasingly serious problems, but there has been little definite information as to the extent of the movement, the results, or the types of persons moving. In order to throw light on these questions, the WPA survey was designed to determine how many had moved into the defense areas during the past year, where they had come from, what types of people they were, the occupations and industries in which they had formerly been employed, their success in finding employment, and the extent to which they had shifted to new occupations and industries. The surveys covered only civilian workers. They were carried on through a sample census of each area, particular attention being given to coverage of rooming houses, lower-priced hotels, defense housing projects, and tourist and trailer camps. Defense migration was found to vary greatly in different localities, on account of variations in the type and intensity of defense activity, the resident labor supply, the economic situation in nearby localities, and the housing situation. The movement into defense

areas involves about as many nondefense as defense workers, since the increased industrial activity draws clerical and service workers who may or may not find jobs contributing indirectly to the war effort. Such workers, however, add to the social and economic problems created by the migration movement.

The migration to defense centers, except in the case of large construction jobs and a few industrial towns, is said not to have been so large as has been reported in newspapers and magazines. San Diego, Calif., had the highest rate of migrants among the 40 areas, the total amounting to 27 percent of the 1940 population; Wichita, Kans., was next, with a 20-percent migration rate. Some of the larger cities have had extremely large in-movements, although the migration rate was lower than in some of the smaller towns. From October 1940, to December 1941, for example, more than 150,000 persons moved into Los Angeles and its suburbs, 50,000 into Washington, D. C., and over 40,000 into Seattle, Wash. In more than half of the 40 areas, the migration rate was less than 5 percent, and in only 9 was it over 10 percent. The survey indicates, however, that the rate of migration has been increasing in most areas, and it is probable that this movement will be intensified in the coming months.

Results of the Migratory Movement

It is stated in the report by Howard B. Myers, published in the March 1942 issue of the Journal of the American Statistical Association, that the defense migration had been strikingly successful. The unemployment rate for all migrant workers in half of the areas surveyed was less than 8 percent, and in a fourth of the areas it was less than 5 percent. In only 1 city out of 7 was the migrant-unemployment rate 15 percent or over. The highest rate in the 40 cities was 17 percent in Fort Smith, Ark., which had drawn large numbers of workers anticipating work on a new army camp; among the very large cities, Los Angeles and St. Louis had the highest proportions of unemployment, each with a rate of 16 percent. These rates are considered by the author of the report reviewed to be remarkably low in view of the fact that the migration movement was almost completely unguided and that many of the migrants interviewed were recent arrivals and had had little time to adjust themselves.

In addition to the fact that so large a proportion of the migrants had obtained jobs, the jobs secured represented an improvement over those previously held. Occupational upgrading had been widespread, and shifts among manual workers from unskilled to semiskilled, and from semiskilled to skilled were frequent. In view of the advancement in grading reported, and the relatively high wages and full employment, it is evident that the incomes of a large proportion of the migrants have risen.

Certain groups among the migrants had not been so fortunate in finding jobs, as the unemployment rates for women and those for Negroes, in most areas, were 3 or more times the rate for white men. In general, young workers had been more successful than their elders, although workers under 20 had the highest unemployment rate of any age group.

In nearly all areas the lowest migrant-unemployment rates were found among skilled manual workers and professional and technical

workers, while the highest rates were among service workers, particularly domestics. The migration rates for Negroes were small in all areas, as a result of the widespread discrimination against them in war industries. However, with the relaxation of present employment restrictions and an increasing demand for labor, it is expected that Negroes will begin to move in greater numbers.

Although there is a popular impression that a large proportion of the defense migrants are coming from agriculture, as a matter of fact in most defense centers fewer than 10 percent of the migrants are farm workers, and even in the South the proportion is seldom as high as 15 percent.

It is evident from the surveys that the demand for labor in defense centers is drawing nonworkers into the labor market in appreciable numbers. From 10 to 20 percent of the migrant workers seeking employment in most of the areas were persons who had never been employed. These persons were mainly students and housewives who were entering the labor market for the first time. Their employment record was generally poor, as in most cities the proportion obtaining jobs was definitely smaller than among the migrants having work experience.

The proportion of 1-person families among the migrants ranged from 30 to 50 percent in most areas, reaching a maximum of 78 percent in Washington, D. C. In many cases these 1-person families were incomplete, between one-fifth and one-half of those surveyed in the different cities having left their families behind when they migrated. This separation reflects in part the normal instability of the migration process, and in part the serious housing shortages existing in many defense areas. The congested housing conditions are further shown by the extent of "doubling-up" among families having more than one member. In most of the defense areas surveyed, 30 percent or more of the migrant families were found to be sharing their dwellings with other persons.

In summing up the results of the study, the writer states that although the extent of defense migration up to the present time has been exaggerated, it is continuing, and that the needs of the war industries and priority unemployment will provide a marked stimulus to further population movements. It seems clear that in the next few years there will be large-scale migration of labor, with the inclusion of sections of the population—women, Negroes, and farm workers—who are now not greatly involved. Serious economic and social problems are now being created, which, if they are not solved, will be extended into the post-war period when large-scale unemployment may again be expected as a result of the rapid reduction in employment in war industries. To keep suffering to a minimum and to avoid the stagnation of pools of unused labor in new depressed areas after the war, will require careful planning over a considerable period of time.

NEED FOR COLLEGE-TRAINED PROFESSIONAL PERSONNEL

IN THE increasing expansion of industry due to the war effort it is anticipated that there will be needed large numbers of college-trained professional employees. In an effort to ascertain the approximate

demand for such employees three sample surveys of the present proportion of college-trained professional workers in the total working force have been made. The results of such surveys are fairly consistent, the present proportion of such employees being found to be around 3 percent. In response to an inquiry made of employers as to the expected increase in employment of such employees, however, the answers showed varying estimates. Data obtained in the surveys are here given.

Survey of Industrial Firms

A survey [1] of 71 companies with a total working force of almost three-quarters of a million persons shows that a little over 3 out of every 100 employees were college trained and engaged in a professional capacity as of December 31, 1941. The results are given in table 1.

TABLE 1.—*Proportion of College-Trained Professional Personnel in Total Working Force, December 1941*

Kind of workers	Number	Percent
Total workers	746,302	100.0
College trained professional personnel	26,328	3.5
Accounting, statistics, etc.	3,317	.4
Engineering	13,197	1.8
Management	6,886	.9
Science (chemists, physicists, etc.)	2,928	.4
Other personnel	719,974	96.5

A complete industrial classification of the returns was impossible because of the small number of firms. It was possible, however, to classify 68 companies into 10 broad industry groups. These data are given in table 2, which shows the proportion of total employees in the 4 professional categories for each of the 10 industry groups. As was to be expected, the largest proportion of professional men in the category of "science" was found in the chemicals and paper-products industries where chemistry and physics are used extensively. By the same token, a negligible proportion in science was found in such industries as textiles and public utilities. Engineering personnel, it will be noted, were concentrated in the heavy industries such as machinery, nonferrous metals, and iron and steel.

The following question was asked of the companies included in the survey: "Would a 50 percent increase in total employment mean a corresponding increase in the number of college-trained employees? If not, approximately what would the percentage increase be?" Fifty companies replied to the question, and the answers ranged from 0 to 125 percent. The median percentage increase was 20 percent. The last column of table 2 gives an industrial breakdown of these answers. It will be noted that the largest expected increases in college-trained personnel were found among the heavy-industry group which is most directly engaged in war production.

[1] The survey was conducted through the office of Dean Arthur M. Green, Jr., Special Consultant to the Chairman of the War Production Board, and the returns were tabulated and analyzed in the Occupational Outlook Division of the Bureau of Labor Statistics.

TABLE 2.—*College-Trained Personnel in Selected Industries, December 1941*

Industry	Number of firms	Proportion of total employees who are college trained					Percent increase in college trained personnel for a 50 percent increase in total employment (median)
		Total	Accounting, statistics, etc.	Engineering	Management	Science	
Machinery	15	3.21	0.23	2.27	0.49	0.22	20
Nonferrous metals	4	5.08	1.29	2.14	.94	.71	25
Iron and steel	10	5.99	.66	3.30	1.21	.82	20
Stone, clay, and glass	6	4.17	.75	1.12	1.60	.70	5
Paper and paper products	5	3.67	.47	.90	.84	1.46	(1)
Textiles	4	.52	.09	.20	.16	.07	23
Food products	4	2.12	.34	.65	.48	.65	(1)
Chemical and petroleum products	10	8.17	1.63	2.84	1.23	2.47	17
Miscellaneous manufacturing	6	3.16	.49	1.33	.13	1.21	19
Public utilities	4	3.25	.28	1.53	1.32	.12	(1)

[1] Not available.

Bureau of Labor Statistics Questionnaire Survey

Comparable results are also available from a questionnaire which was mailed from the Bureau of Labor Statistics. Table 3 shows the distribution of professional personnel based on information from 24 companies.

TABLE 3.—*Proportion of College-Trained Professional Personnel in Total Working Force, December 1941—Bureau of Labor Statistics Questionnaire*

Kind of workers	Number	Percent
Total workers	195,285	100.0
College-trained professional personnel	4,342	2.2
Accounting, statistics, etc.	490	.3
Engineering	2,975	1.5
Management	877	.4
Other personnel	190,943	97.8

No information was obtained for the science category, but the proportion of total personnel in the other categories is consistent with the results obtained from the survey outlined above.

The Bureau of Labor Statistics questionnaire also sought to discover the expected increase in employment between December 1941 and January 1943. Twenty-two companies answered the question and indicated that their total employment would increase by 43 percent during that interval of time. This was about twice as large as the increase expected by the companies in the other survey. The difference between the two is accounted for by the fact that almost every one of the firms surveyed by the Bureau of Labor Statistics was directly engaged in the war effort. They included seven of the largest airplane manufacturers and producers of ammunition and machine tools.

Ordnance Plants Survey

Similar information was obtained from eight companies engaged in ordnance production. The distribution of the personnel of these companies as of April 1942 is given below.

It will be noted that the proportion of professional personnel to total employees (3.1) is consistent with the results derived from the other surveys. However, the ordnance plants indicate a smaller proportion in the category of engineers and a much larger proportion in management. This arises out of the fact that commissioned officers were placed in the management category, as were engineers who were acting in a supervisory capacity.

	Percent
College-trained professional personnel	3. 1
Accounting, auditing, etc	. 1
Engineering	. 8
Science	. 6
Management	1. 6
Production personnel	71. 5
Maintenance personnel	9. 9
Other personnel	15. 5
Total workers	100. 0

COLLECTIVE BARGAINING IN THE CHEMICAL INDUSTRY, MAY 1942[1]

THE chemical industry, as used in this report, includes establishments whose principal products are acids, organic and inorganic; nitrogen and fixed nitrogen compounds; sodium compounds; potassium compounds; alums; coal-tar products; plastics; and miscellaneous organic and inorganic compounds.[2] The chief chemical products not included in this study are compressed and liquified gases, explosives, fertilizer, soap, and wood-distillation products.

Access to market is probably the chief factor influencing the location of the chemical industry, although availability of raw materials is also an important consideration. A large proportion of all chemicals produced are purchased by other chemical manufacturers or by industries which make use of a chemical process in manufacture. Fully half of the chemical-production industry is located within the States of New Jersey, New York, Pennsylvania, Ohio, and Illinois, where industrial consumers are most heavily concentrated. Chemicals are, however, produced in 39 States, a fact which reflects a wide distribution of consumer centers and raw materials. Partly under the stimulus of defense requirements, the trend is toward further geographic decentralization. Plants are now being constructed in the central part of the country, well inland from coastal areas, where they are likely to be less vulnerable in time of war.

The large space required for plants and the problem of disposing of noxious gases and waste products, as well as the necessary proximity to raw-materials sources, have resulted in the construction of plants in rural areas, in isolated districts, or on the periphery of industrial centers. In large measure, therefore, the industry has drawn on rural areas for its labor supply.

While the chemical industry includes a large number of small plants, a few establishments employ a relatively large proportion of the total workers in the industry. According to the 1939 Census of Manufactures, over three-fourths of the plants, with approximately 15 percent of the total workers, employed less than 100 workers each. Slightly over one-fifth of the plants, with approximately 60 percent of the total wage earners, employed between 100 and 1,000 wage earners. Only 11 plants out of 630 in the industry employed over 1,000 wage earners, representing over one-fourth of the total workers.

Employment in the chemical industry has increased markedly since 1939. According to Bureau of Labor Statistics estimates, there were

[1] Prepared by Abraham Weiss of the Bureau's Industrial Relations Division, under the direction of Florence Peterson, chief.

[2] The industry definition used here corresponds to the following 1939 Census of Manufactures classifications: "Chemicals not elsewhere classified"; "Coal-tar products, crude and intermediate"; "Plastic materials." Prior to 1939, these groups were classified by the Bureau of the Census as "Chemicals not elsewhere classified."

110,000 wage earners in the industry in May 1942, compared with 66,400 in May 1939. Very few women are employed, the 1939 census indicating less than 3 percent of the total.

Unions in the Industry

Between 35,000 and 40,000 workers, representing about 35 percent of the total in the industry, were covered by affiliated union agreements in May 1942.[3] Unionization on a fairly extensive scale in the chemical industry is a development of recent years. Prior to 1937, there were no international unions primarily interested in organizing chemicals, although a few plant-bargaining units had been chartered as federal labor unions by the American Federation of Labor. In addition, particular groups of workers in some plants were members of craft unions.

The United Mine Workers of America entered the chemical field in September 1936, by establishing District 50 with jurisdiction over the "coal-process" workers of the United States and Canada. Its jurisdiction was soon extended to cover all chemical workers. The nucleus of District 50 was the National Council of Gas and By-Product Coke Workers, a loose organization chartered by the American Federation in 1935 and composed of Federal labor unions, mostly in Massachusetts, which had been established during the NRA. District 50, known as the Gas, By-Product Coke and Chemical Workers, became an affiliate of the C. I. O. when the United Mine Workers joined the C. I. O. in 1937.[4] The majority of District 50's agreements are with companies located in the East and Middle West.

Many of the federal labor unions which belonged to the National Council of Gas and By-Product Coke Workers, but which did not join District 50, together with other federal labor unions in the chemical industry, combined to form the National Council of Chemical and Allied Industries Unions, which was chartered in September 1940 by the American Federation of Labor. A large number of the organized chemical plants on the west coast are under this Chemical Council, which also has agreements in the East and Middle West, as well as some representation in the South. In addition, there are a considerable number of A. F. of L. federal labor unions in chemical plants which are not yet affiliated with the Chemical Council.

Several unions whose jurisdiction is ordinarily limited to other industries have also organized a few chemical plants. The International Union of Mine, Mill, and Smelter Workers (C. I. O.) has a few locals in the industry, especially in those plants where mining operations are carried on in connection with the production of chemicals. Other C. I. O. unions include the United Steelworkers of America, the Textile Workers Union of America, the United Electrical, Radio and Machine Workers of America, the Oil Workers International Union, and the United Cannery, Agricultural, Packing and Allied Workers of America. Two A. F. of L. unions, the International Association of Machinists and the International Brotherhood of Electrical Workers, have organized some workers in a few chemical plants. The Federation of Architects, Engineers, Chemists and Technicians (C. I. O.) has organized the laboratory and technical

[3] In addition, about 9,000 workers were covered by agreements negotiated by unaffiliated employee organizations restricted to a single plant. These are not included in the following analysis.

[4] Since this article was written, several locals have left District 50 and have joined a newly created C. I. O. National Council of Gas, Coke and Chemical Workers.

staff in a few chemical plants. All of these unions—excepting A. F. of L. craft unions and the F. A. E. C. T.—organize on an industrial, plant-wide basis and take in most or all of the production workers in the plant.

Since the membership of these unions includes many who are not attached to the chemical industry, no exact figures can be given for the membership of each union in this industry. Of the chemical workers under agreement, about 85 percent are represented in almost equal proportion by District 50 and by the Chemical Council and other A. F. of L. federal unions; about 5 percent by the Mine, Mill and Smelter Workers; and about 10 percent by the other unions.

Union Agreements

The following analysis is based on a study of 84 agreements in the files of the Bureau of Labor Statistics, which cover chemical plants in 18 States. The analysis includes all the major agreements known to the Bureau to be in force in May 1942. The number of workers covered by these agreements varies: 34 agreements cover less than 100 workers each; 36, between 100 and 500 workers; 5, between 500 and 1,000 workers; and 10, over 1,000 workers.

Practically all the agreements in the chemical industry were negotiated by the local unions and individual companies or plants. In a few cases a company has signed one agreement to cover two plants; in two cases agreements have been signed jointly by two companies. Three agreements specify that a change in the name of the union shall not invalidate the agreement.

Agreements with the larger companies are mentioned by name in the following discussion. The largest of these companies and the number of plants for which agreements are in the Bureau's file, are as follows: American Cyanamid Co. (2); American Potash & Chemical Co. (1); Celluloid Corporation (1); Diamond Alkali Co. (3); Dow Chemical Co. (2); Electro-Metallurgical Co. (1); General Chemical Co. (3); Harshaw Chemical Co. (2); Michigan Alkali Co. (1); Monsanto Chemical Co. (5); Pittsburgh Plate Glass (Columbia Chemical Division) (1); Potash Co. of America (1); and United States Potash Co. (1). The United States Potash Co. has two agreements covering the same plant. Important companies in the industry with all or most of their plants not under agreement include Bakelite Corporation, Carbide & Carbon Chemicals Corporation, E. I. DuPont de Nemours & Co., Mathieson Alkali, Rohm & Haas, and Tennessee Eastman Co. When the Diamond Alkali Co. is mentioned, the reference is to the plant at Fairport Harbor, Ohio.

Duration and Renewal of Agreements

Approximately 80 percent of the agreements, including most of the major companies, are in effect for 1 year, but are renewable automatically unless notice of intention to change or terminate is given by either party. The duration of all but one of the remaining agreements varies from 10 months to 3 years. The three Shell Chemical Co. agreements are in effect for an indefinite period, with cancelation or amendment of the agreements effective 2 months after the last of any month in which either party has given notice.

About 60 percent of the agreements are automatically renewable for successive yearly periods, and about 10 percent for an indefinite

period until notice is given. Four agreements are renewable for an additional year only; and one, for an additional 6 months. The other agreements make no reference to renewal.

Most of the agreements specify the amount of advance notice which must be given by either party to effect a change or for termination at expiration. The usual notice period, found in slightly over 60 percent of the agreements, is 30 days; in 11 agreements it is 60 days. Other periods specified are 40, 45, and 70 days, respectively, in 3 agreements. One agreement requires a 60-day notice for modification, and a 30-day notice for termination.

In addition to the wage adjustments, discussed below, modification of other provisions by mutual consent at any time or at specified intervals during their effective periods is expressly provided for by agreements of the United States Potash Co. and four others.

About one-fifth of the agreements, in addition to requiring notice, also specify that conferences must be held after notice is given in order to negotiate a new agreement. According to eight agreements, conferences must start within a specified period after notice, varying from 10 to 45 days; in the remainder, negotiations must begin within a specified period before the expiration date, 5 days in two agreements and 20 days in four agreements.

Thirteen agreements, including 6 of the major plants, provide explicitly for extension by mutual consent if negotiations are in progress when the agreements expire. The extension is limited to 60 and 30 days in two agreements, and 10 days in one, while one agreement states that either party may terminate negotiations after the expiration date on 5 days' notice. The agreements of the Diamond Alkali Co., Pittsburgh Plate Glass (Columbia Chemical Division), and Jacques Wolf & Co., specifically make the term of any new agreement thus reached retroactive to the expiration date.

Union Status

About 10 percent of the workers covered by agreements are employed under closed- or union-shop conditions. Of the 19 agreements with closed- or union-shop provisions, only 1 is with a large company (Michigan Alkali). Nine of them require the company to hire through the union, usually with the requirement that the union must furnish needed men within a given time, ranging from 4 to 48 hours. If the union is unable to comply, the company may hire directly, but such employees must join the union within a short period. One closed-shop agreement provides recourse to arbitration should the company refuse to discharge any employee suspended or expelled from the union, except for nonpayment of dues.

A modified union shop, under which all new employees, but not old employees, must join the union, is specified in three agreements. One of these and one other provide for preference in hiring to union members. "Maintenance of membership" clauses are included in two agreements which require those employees who have joined the union or who may become members to maintain their membership in good standing as a condition of continued employment. One of these, the American Cyanamid Co. (Bound Brook, N. J.), also requires the company to furnish copies of its agreements to new employees. The other requires that the company post a statement encouraging employees to join the union.

Two agreements contain clauses which strengthen the union's position without establishing maintenance of membership. One of these, the result of an arbitration award, specifies that the company shall "review" its relationship with the union with any new employee who fails to join the union. If the union then feels that the result of the review weakens the status of the union, both company and union agree to submit the matter to arbitration. In another, the company "reserves the right, although it is not obligated," to dismiss any employee who fails to maintain his membership or who fails to join within 30 days after employment. Four agreements state that the company shall encourage employees to join the union and maintain their union membership.

In 49 of the 84 agreements the unions are given recognition only as the sole bargaining agency for all workers. Certain occupational groups, such as office employees, supervisors and foremen, and laboratory technicians usually are excluded from coverage. One of these agreements requires the company to furnish copies of its agreement to new employees. Four agreements either grant the union the bargaining power for its members only, or fail to specify the recognition status extended to the union.

COLLECTION OF UNION DUES

A general check-off of union dues by the company is established in 4 major agreements, including Diamond Alkali and Michigan Alkali. Fifteen agreements, including Dow Chemical (Midland, Mich.), United States Potash Co., and the Potash Co. of America, permit individual employees to authorize deductions from their pay for union dues. One other union agreement contains a reference to a check-off plan in existence, but gives no details. The maximum amount which the company agrees to deduct is specified in 9 of these agreements. The Celluloid Co. and Monsanto Chemical Co. (St. Louis, Mo.) agreements facilitate the collection of union dues by the union. In the former, the company agrees to provide space for the union for dues collection; in the latter, to provide a desk and chair for a union representative, on his own time, to receive dues during specified hours.

ACTIVITIES AFFECTING UNION STATUS

Thirty-four of the 84 agreements include clauses specifically forbidding company discrimination on account of union membership or activity. Four agreements, including Diamond Alkali and American Cyanamid (Bound Brook, N. J.), provide disciplinary action which may include discharge by the company for employees who engage in antiunion activity on company premises. In another agreement the company must post the agreement and instruct the supervisory staff to comply with its terms. Approximately half the agreements which include clauses forbidding company discrimination against union employees also prohibit coercion and discrimination against nonunion employees by the union. One agreement specifically makes a violation of this provision grounds for discharge.

Slightly over one-fourth of the agreements prohibit union activity (except by company permission) or solicitation of members on company time, and a few prohibit such activities on company property. One agreement, however, in which the company states that it will

encourage union membership, permits the shop steward to solicit union membership on company property during the 60 days following the signing of the agreement.

In 11 agreements, the union representative is specifically accorded the right to enter the plant to check on enforcement of the agreement and, with the permission of the employer, to confer with the workers. These generally stipulate that his visits are not to interfere with plant operations. Four of these agreements affirm that the company may have a representative accompany the union official throughout the plant, and three state that the union representative must sign a waiver releasing the company from liability for accidents to the representatives while on company property.

Slightly under one-half of the agreements, including both small and large plants, grant the union the right to use the company's or its own bulletin board for posting notices. A few specifically limit notices to announcements of union meetings or other union business, and some state that notices are subject to management's approval before posting.

Wages

Nearly half of the agreements contain detailed occupational wage listings. An additional 14 percent contain minimum wage rates. About one-fourth of the agreements specify beginners or new employees' rates below the minima for a stipulated period, ranging from 2 weeks to 6 months. The other agreements do not include wage rates as such, but usually indicate that present wage levels are to be maintained or increased by a specified amount.

Several of the agreements which have occupational listings also indicate that incentive plans are in force in specified departments or for certain occupations. Bonus plans based on plant production and shipments are contained in two agreements. In one of these (Southern Alkali Co.) a graduated percentage, varying with the total amount of shipments of the products of the plant for each quarter, is added quarterly to the minimum rates of employees with at least 6 months' service. In the other, employees receive a specified sum varying with the amount produced.

All but three agreements specify minimum wage rates at 50 cents per hour or more. Twelve agreements establish minimum rates above 75 cents per hour. The highest rates are specified by an agreement which sets a minimum of 91¼ cents for helpers (white) and 85¼ cents for laborers (colored). Three agreements, covering plants located in the South and Southwest, have minimum rates ranging from 32 to 50 cents per hour.

Four agreements, including Celluloid Corporation and Monsanto Chemical Co. (Springfield, Mass.) have lower minimum rates for women than for men. The difference ranges from 5 cents in any department to a blanket 20 cents per hour difference. The Celluloid Corporation agreement protects the position of male employees by forbidding hiring of women if this results in the loss of a job or of work by male employees.

INTERIM WAGE ADJUSTMENTS

Wage adjustments during the term of the agreement are allowed in over one-half of the agreements, covering the same proportion of workers. Slightly over half of these permit the question of wages to be reopened whenever there is a change in cost of living, but only

nine, negotiated with smaller companies, require automatic adjustment of wages to cost of living. A small number of agreements permit reconsideration of the wage scale at any time during their life, provided notice is given by either party. In the remainder, the wage question may be reopened in case of inflation; or at specified periodic intervals; or if there has been a "material increase" in the price of the company's product; or on petition by the company that, owing to conditions beyond its control, an "adjustment of productive costs" is necessary. In the latter case, the agreement provides for a joint survey of wages and hours in "comparable operations in this and similar localities."

DISMISSAL PAY

Dismissal pay to employees whose jobs are permanently abolished is assured by the Celluloid Corporation agreement. Employees affected are given the option of being placed on a reinstatement list or receiving dismissal pay on the basis of 1 week's average pay for each full year of service up to 10 years' service. "One week's average pay" is defined as 40 hours multiplied by the average hourly earned rate of the year in which the dismissal takes place.

MINIMUM CALL PAY

A common provision, found in over three-fourths of the agreements, requires payment of a minimum amount to employees who report to work at the usual hour or who are called to work, but are not given employment for a full shift. Usually, the minimum call pay varies from 2 to 4 hours, with the latter most frequent. Two agreements, however, guarantee employees a full shift's work. Ten agreements assure a minimum of 2 hours' pay if no work is available and 4 hours' pay if work is started. One agreement guarantees a minimum of 2 hours' pay if the employee reports for work on the first day of the week and a minimum of 4 hours for succeeding days in the same week. A minimum of 4 hours' pay if no work is available and 8 hours' pay if work is started is paid employees on the midnight shift, according to one agreement. Three Monsanto agreements grant a full shift's pay to employees unable to finish their day's work because of occupational illness or injury.

CALL-BACK PAY

Two-fifths of the agreements guarantee pay for a specified number of hours to employees called back to work after having completed their regular shift. The rate specified is usually that allowed for overtime, although work in excess of the regular hours may not necessarily be involved. The minimum guaranty varies considerably and ranges from 1 to 8 hours, but is most frequently 2 hours. Five agreements contain no minimum guaranty but specify the overtime rate for time so worked even though within regular hours. The Buffalo Electro-Chemical agreement establishes a sliding rate for such work, ranging from triple time for 1 hour or less to 1½ for work over 3 hours. Pay for the entire elapsed time, in addition to time actually worked, only if employees are called back within 3 hours and within 8 hours, respectively, after leaving the plant, is specified in two agreements.

TRANSFER RATES

Provision is frequently made in chemical agreements for the temporary transfer of an employee to a job paying a different rate than his usual wage. Employees temporarily shifted to higher-classified jobs generally receive the higher scale immediately. In a few agreements, the higher rate applies only after an employee has worked on the job for a minimum period or until he is "fully qualified." In two cases, employees get the higher rate for a full shift if they work at the higher job more than a minimum number of hours. One of these also provides that an employee temporarily assigned to a higher rated job for more than 3 days shall receive the higher rate for the entire week, and if so assigned for 2 consecutive weeks, shall be entitled to 80 hours' work at the higher rate regardless of whether or not he stays on the higher-rated job the full time.

Over one-third of the agreements provide, as a guard against loss of earnings, that a temporary transfer to a lower-paid position will not result in a deduction from the employee's regular rate unless, as is generally specified, such transfer is to avoid lay-off for lack of work in the employee's regular position. According to two agreements, however, the employee continues to receive his original rate for 2 weeks.

SICKNESS AND DISABILITY BENEFITS

Sick-benefit plans, under which employees are eligible for sick-benefit payments in case of absence due to illness or other disability, except in cases where compensation is payable under the provisions of State workmen's compensation laws, are provided in eight agreements. In all but three cases, benefits are restricted to employees with at least 1 year of service. The benefits granted vary.

In three agreements covering employees of the Shell Chemical Co., employees get half pay, beginning with the fourth day of disability, up to a total of 4 weeks during any year of service, and employees with less than 1 year of service are entitled to pro rata benefits. Another agreement states that injured employees shall be compensated during the 1 week "waiting period" provided under the State workmen's compensation act. The Potash Co. of America agreement provides for 5 days' pay to sick employees with at least 1 year's service. Another agreement which has a similar provision also permits unused sick leave to be added to the vacation period, if this is for 1 week, but not if for 2 weeks.

MISCELLANEOUS PAY PROVISIONS

Extra pay for hazardous or unpleasant occupations is sometimes provided. The Shell Chemical Co. pays employees engaged on such work an extra half-hour's pay at their regular rate; in addition, this company and two others grant a monthly clothes allowance to compensate for damage to employees' clothing.

Under one agreement, a regular employee (except a shift worker) is entitled to his regular rate of pay for jury duty minus any compensation received for such service, or for the number of hours of work lost, whichever is smaller, for a maximum of 7 days.

Hours, Shift Provisions, and Overtime

Almost all of the agreements provide for a regular 8-hour day and 40-hour week. Only five agreements contain provisions differing from this standard, although all workweeks in excess of 40 hours are, of course, affected by the overtime pay requirements of the Fair Labor Standards Act. Under the West End Chemical Co. agreement, production workers on continuous operations work six 40-hour weeks and two 48-hour weeks in an 8-week period; other production employees, however, follow the prevailing standard. Under the terms of the Dow Chemical (Great Western Division) agreement, shift workers average 42 hours per week in any period of 20 consecutive weeks; other employees (except truck drivers, who average 48 hours in a period of 13 consecutive weeks) are on an 8-hour day, 40-hour week basis. One agreement fixes an 8-hour day without specifying weekly hours; another stipulates a 40-hour week without limiting daily hours; and a third states that hours are to "conform to legal requirements."

SHIFTS

Most chemical companies operate on a multiple-shift basis owing to the continuous nature of the manufacturing processes.

Shift rotation is required in 11 agreements, covering about one-fourth of the workers under agreement. (Other plants may, in practice, have shift rotation.) Two-day notice of shift changes (except in cases of emergency) is specified in two General Chemical Co. agreements and an employee failing to receive such notice is entitled to the overtime rate for time worked within such 2-day period for which he has failed to receive notice.

Extra pay ranging from 2 to 6 cents per hour, and in one case, 10 percent, is provided for employees on shift work by 14 agreements. Four of these provide for rotation of shifts. One agreement, which does not provide for shift rotation, specifies time and a quarter for regular employees on the night shift, while temporary employees receive a 5-cent differential. The Pacific Coast Borax Co. agreement provides that employees "regularly required to work in rotation" shall "while performing such shift work" be paid a differential, but that only the second and third shifts are entitled to the differential on fixed shifts. The Monsanto Chemical Co. (Springfield, Mass.) provides a 2½-cent hourly differential for all rotating shift workers; Catalin Corporation pays a 5-cent hourly shift premium for night-shift workers on rotating shifts. The Diamond Alkali Co. agreement (Fairport Harbor, Ohio) provides for shift rotation and grants a 3-cent hourly differential for afternoon and night shifts for those not on rotation.

In 10 agreements shift employees required to work extra hours due to failure of their relief to report, receive their regular rate of pay unless such work causes their weekly hours to exceed 40 hours; in 3 others the overtime rate is paid for the extra work whether or not this results in overtime. Under the Dow Chemical Co. (Great Western Division) agreement, employees working an extra shift are to be furnished meals.

Under 11 agreements, overtime is to be paid employees called in to work on their regular day off, with minima of 3 hours and of 8 hours specified in two. Five of these, including several Monsanto plants,

cancel the overtime rate if previous notice of a change in their work schedule, ranging from 16 hours to 1 week, has been given.

OVERTIME

The overtime rate of time and one-half applies to work in excess of either 8 hours per day or 40 hours per week, with but few exceptions. About 15 percent of the agreements specifically stipulate that there shall be no duplication of overtime pay although others may, in practice, be so interpreted. In a few cases, particularly for shift workers, overtime is permitted only for work beyond 40 hours. The Shell Chemical Co. agreements require a minimum of 1 hour overtime pay even though actual overtime worked is less. Four agreements provide that any changes made in the legal overtime provisions of the Fair Labor Standards Act shall supersede the hours and overtime provisions of the agreement. In the American Cyanamid Co. (Newark, New Jersey) agreement, however, any proposed increase of the 40-hour week by the company is considered a grievance and is subject to the grievance machinery. The Dow Chemical Co. (Great Western Division) agreement provides that employees' normal weekly earnings shall not be reduced if such changes should take place.

Approximately one-fifth of the agreements, including most of the large plants, state that overtime is to be distributed equally among all employees affected. To enforce this provision, the Diamond Alkali and several Monsanto agreements require the company to post a record of overtime worked in each department. About 15 percent of the agreements provide that employees do not have to take time off to offset any overtime worked.

The Dow Chemical (Midland, Michigan), Electro-Metallurgical, Monsanto (E. St. Louis, Illinois), Durez Plastics, and eight additional agreements, covering about one-fourth of all workers under agreement, make provision for lunch on company time or state that the company is to supply meals if overtime work exceeds 2, or less frequently 4, hours in one day.

LUNCH PERIODS

Only a few agreements make specific reference to regular lunch periods. Four agreements specifically provide that shift employees shall eat lunch on company time. A few agreements, however, apply the overtime rate whenever employees are required to work through their regular lunch period, although the total time worked may not exceed 8 hours, and two permit employees to stop work one-half hour early to compensate for loss of mealtime.

TIME FOR CLEANING UP

Nine agreements, including two Monsanto plants, Pittsburgh Plate Glass (Columbia Chemical Division), and three Shell Chemical, specify that time for cleaning up and for returning tools shall be allowed during regular working hours without deduction from the employee's pay.

Saturday, Sunday, and Holidays

Sixteen of the 84 agreements provide penalty rates for Saturday work for all or some of the workers. Five (three plants employing less than 100 workers, and two with less than 300) provide time and

one-half for all work on Saturday regardless of whether or not such work comes within the 40-hour week. In the Dow Chemical (Midland, Mich.), American Cyanamid (Bound Brook, N. J.), Celluloid Corporation, Harshaw Chemical, General Aniline Works (Rensselaer, N. Y.), and six other agreements—covering over 9,000 workers—the penalty rate for Saturday work excludes the majority of the production workers, variously described as "shift workers," workers on "continuous process," on "necessary continuous operations," on "7-day operations," and employees "regularly scheduled for Saturday work."

Fourteen agreements, including that with the Monsanto Chemical Co. (Springfield, Mass.) provide penalty Sunday rates for all workers regardless of whether such work is within the 40-hour week. In 29 agreements penalty rates for Sunday work are provided only for production workers whose regular schedules do not include Sunday work. As in the case of Saturday work, employees exempted from the Sunday penalty rate include "shift workers," employees "regularly scheduled" for Sunday work, and those engaged in "continuous process," "continuous operations," or "7-day operations." The Sunday penalty rate is time and one-half in all but two agreements (Burton T. Bush and Harshaw Chemical Co.) which specify double time.

The three Shell Chemical Co. agreements and the American Cyanamid Co. (Newark, N. J.) agreement specifically authorize the payment of regular rates for Sunday work. One agreement, covering craft workers only, grants time off during the week for Sunday work. The balance of the agreements make no specific reference to the rate applying to Sunday work when not in excess of 40 hours per week.

Holidays with pay are provided under 11 agreements, the number of holidays ranging from 1 to 9. The two United States Potash Co. agreements and the Potash Co. of America agreement provide two paid holidays, the latter restricting such benefits to employees with a minimum of 1 year's service. The Pacific Coast Borax Co. agreement provides 4 paid holidays. The other holiday-with-pay provisions were in agreements with small companies.

Over two-thirds of the agreements establish a penalty rate for work performed on designated holidays. The number of such holidays recognized ranges from 2 to 10, with 6 most frequent. One-third of these, including the Dow Chemical (Midland, Mich.) and Celluloid Corporation agreements, require the payment of double time; the remainder, including most of the other large companies, specify time and one-half. Two agreements fix time and one-half for all holidays except Christmas, when double time applies. Some of the agreements specifically exclude watchmen and, in a few cases, shift workers on continuous operations from the penalty rate for holiday work.

Vacations and Leaves

Annual paid vacations are established in about 95 percent of the agreements. About 70 percent provide 1 week's vacation with pay after 1 year of service. Five agreements, including those in several Monsanto plants, provide 2 weeks' vacation after 1 year of service. American Cyanamid (Bound Brook, N. J.), General Chemical Co. (Port Chicago, Calif.), and 5 other agreements require 2 years'

service for 1 week's vacation; 1 agreement requires 2½ years; and 3 agreements require 3 years' service.

Provision for longer vacations for employees with additional years of service is found in 60 agreements including all the major plants. With one exception—Dow Chemical Co. (Great Western Division), which graduates vacations up to 4 weeks after 25 years of service—the agreements set a limit of 2 weeks' vacation after varying periods of service. Five years' service is required in 20 agreements, 2 years' service in 14 agreements; 3 years' service in 10 agreements; and the other agreements set a requirement of from 15 months to 10 years. One agreement grants 1 week's vacation with 80 hours' pay after 5 years' service.

Ten agreements, including United States Potash, Monsanto Chemical Co. (East St. Louis, Ill.), and Michigan Alkali, permit compensatory pay in lieu of actual vacations. In the latter two agreements the choice is left to the individual employee; in the others, to the company. In one agreement, the company has the option of making cash payment for the second week's vacation. In another agreement, if the Government requests continued operations, employees are to receive pay in lieu of the vacation period, and in addition, a bonus equivalent to 3 hours for each week's vacation.

LEAVE OF ABSENCE

Half the agreements permit limited leaves of absence. Of these, approximately four-fifths specifically cite leave for union business; in the others, leave on account of illness or death in the family, or for other personal reasons, educational purposes, or for Government service, is mentioned. The two United States Potash Co. agreements grant up to 30 days' leave to seek a new job without loss of seniority rights with the company; General Chemical Co. (Chicago, Illinois), on the other hand, cancels the seniority of employees who work elsewhere while on leave.

The agreements generally specify that at the expiration of the leave, the worker is to be returned to his former or an equivalent job with his seniority and other rights unimpaired. Eight agreements, moreover, allow employees who serve as full-time union officers to accumulate seniority during their term of office. A specific limit on leave is commonly set, but varies from 5 to 90 days, and some agreements grant privileges of renewal. Employees chosen for full-time union office are entitled to leave up to a maximum of 2 years in three agreements. Ten agreements restrict the number of employees who may be granted leave at one time for union business; three is the commonly set limit.

One agreement provides that if an employee of the company who is not essential to its continued operation procures a job in a defense industry, and the defense industry certifies that such employee is essential in that industry, then the union and the employer will determine whether such employee shall be granted a leave of absence without loss of seniority.

Seniority, Lay-Off, and Promotions

Seniority provisions granting preferential treatment based on length of service are found in all the chemical agreements. They apply

principally to lay-offs and reemployment, although, as indicated below, seniority is recognized also as a factor in promotions. Most of the agreements require a probationary period of from 3 weeks to 6 months, although in about one-third of the agreements analyzed no probationary period is specified.

About half the agreements define the unit to which seniority applies. Of these, about one-half, which include most of the larger plants, combine plant-wide and department seniority; the others provide for seniority either on a plant-wide basis or on a department-wide basis. Where department seniority only is provided for, a person transferred from one department to another sacrifices seniority rights already earned.

Where both plant and department seniority are in effect, if a given department is reduced, workers who are laid off on the basis of seniority in the given department, may qualify for positions in other departments on the basis of their total plant seniority and displace the workers already filling these positions. A few agreements provide that, in order to claim jobs in other departments, employees must have had previous experience in the other department. In several agreements, displacing or "bumping" an employee with less plant seniority is permitted only in the "yard" or general labor department; and some agreements restrict "bumping" rights to employees with at least 1 year's seniority.

A few agreements which provide for both plant and department-wide seniority, specifically indicate the employee's seniority status on transfer to another department. In some of these cases, employees lose their former departmental seniority upon transfer. In three cases, however, seniority rights in the old department are retained for a specified period—6 months to 1 year—and seniority in the new department dates from the expiration of this given period. In one agreement, employees transferred at their own request lose their old department seniority, but are credited in the new department with half of their previous department seniority up to a maximum of 2 years; employees transferred at the request of the company, however, are credited in the new department with their previous department seniority.

Dow Chemical (Midland, Mich.), Michigan Alkali, and two additional agreements permit employees promoted to a supervisory capacity to accumulate plant, but not department, seniority.

Many agreements describe in detail the conditions under which seniority rights are maintained or may be lost. Most commonly, it is provided that seniority is retained during periods of enforced lay-off. This period is limited in most cases to a specified period of time—most frequently 1 year—after which seniority rights are lost. The Niagara Alkali agreement permits employees with 1 year's service to accumulate up to 9 months' seniority after being laid off; Vanadium Corporation and Southern Alkali, up to 6 months; Monsanto Chemical Co. (E. St. Louis, Ill.) up to 2 years, while Monsanto (St. Louis, Mo.) sets no time limit, provided employees laid off indicate their desire every 6 months to be retained on the seniority list.

Retention of seniority rights when absent because of accident or sickness is guaranteed in about one-fourth of the agreements. Most of these agreements do not set a time limit beyond which such employees forfeit seniority rights. Two agreements limit such leave without loss of seniority to 3 and 9 months, respectively. Four

agreements provide for reinstatement with accumulated seniority if a worker is not absent more than 6 months or 1 year on account of illness or injury.

Seniority rights are commonly forfeited by employees who quit or who are discharged or who fail to return to work after a lay-off within a specified period of time—from 24 hours to 3 weeks—when requested by the company to report; also by employees absent without an acceptable excuse, or who work elsewhere during a leave of absence without company permission, or who fail to return by the expiration of their leave. The Midwest Carbide Co. agreement provides that failure to respond to a summons to work will not result in a loss of seniority if the work is of a temporary nature, but will if permanent work is offered.

Over 60 percent of the agreements specifically require that seniority lists are to be posted by the company or be kept available for inspection by the union or by the employees. Three agreements, including two of the United States Potash Co., require approval by company and union representatives before the seniority list shall become effective.

LAY-OFF AND REHIRING

Under about one-half of the agreements, seniority is the determining factor in selecting workers for lay-off and rehiring; the other agreements specify that seniority is to be given due consideration along with ability, skill, qualifications, and in a few instances, family status, physical fitness, or citizenship. Where these other factors are relatively equal, seniority is to govern. Dow Chemical (Midland Mich.), U. S. Potash, Michigan Alkali, American Potash and Chemical, and Diamond Alkali are among the important firms providing for straight seniority in lay-off and rehire. Seniority qualified by other factors in determining the order of lay-off and rehire is provided in agreements of Monsanto Chemical Co., General Chemical Co., American Cyanamid Co., and Potash Co. of America.

Advance notice of lay-offs to employees or to the union is required in about one-third the agreements, including most of the major companies. The notice period varies from 24 hours to 2 weeks. Pay in lieu of notice is specified in the agreements of the Martin Dennis & Co. and two of the Monsanto plants.

Work sharing is combined with lay-offs on the basis of seniority in about one-fourth of the agreements, including all the major plants except four Monsanto Chemical plants. Eleven agreements provide that work will be shared among all the employees until the hours are reduced to a specified minimum, usually 32 hours per week. If there is still not enough work to go around, lay-offs are made on the basis of seniority. Nine agreements do not establish a lower limit beyond which work is no longer shared and lay-offs begin. Ten agreements provide for the equal division of work, but only after temporary employees or all employees with less than a certain period of service—most often 1 year— have been laid off in reverse order of their seniority.

PROMOTIONS

The method of promoting and filling vacancies is outlined in about three-fourths of the agreements. In most of these, seniority

is considered along with other factors, such as ability, skill, and competence. If these qualifications are approximately equal, seniority is then made the determining factor. In only a few agreements with small companies does seniority alone govern promotion. Under the Diamond Alkali, Pittsburgh Plate Glass (Columbia Chemical Division), and United States Potash agreements, if ability or other factors are given greater weight than seniority, the grievance committee must be notified before the promotion is made and has recourse to the adjustment machinery.

Vacancies must be publicized by posting of announcements on company bulletin boards according to one-fourth of the agreements, and four of these require the company either to post the name of the successful applicant or to notify the union committee. Notices of vacancies must be posted for definite periods which range from 48 hours to 1 week. Employees absent on account of illness, vacation, or leave of absence during bulletining of positions are permitted to apply for the job and exercise their seniority rights, according to the United States Potash and several Monsanto agreements. Two of the latter agreements restrict such right to employees returning within 30 days of the closing date of application.

Under about one-fourth of the agreements, successful bidders must serve a trial period, generally 30 days, on the new job in order to qualify for the vacancy. If an employee fails to prove his ability to fill the job during the trial period, he generally returns to his former job without loss of accumulated seniority rights. Seven agreements, including Diamond Alkali, Pittsburgh Plate Glass (Columbia Chemical Division) and Harshaw Chemical, also set a lower rate for the new job while the employee is serving his trial period.

DISCHARGE AND QUITS

The subject of discharge is taken up in three-fourths of the agreements, and it is usually provided that in the event of summary dismissal of an employee, the company must show reasonable cause for such dismissal if requested to do so by either the union or the individual involved. Several of the agreements give a detailed list of reasons justifying discharge. Some merely require that any discharge be for "good cause"; others make violation of posted company rules sufficient cause for discharge. Eight agreements allow disciplinary action against employees who fail to report to work as scheduled without notifying the company in advance. One agreement prohibits discharge because of age.

To safeguard the worker against arbitrary discharge, one agreement provides 1 week's notice of the discharge before the employee's actual separation from the pay roll and prohibits discharges until after consultation with the union committee. The Southern Alkali agreement requires discharges for inefficiency on the job to be discussed with the union. In three agreements, employees are first suspended, and appeal may be made within 3 days before actual discharge.

Most of the agreements provide for handling disputed discharge cases through the regular grievance machinery. In some cases, however, special time limits for settling discharge cases are specified. One-fourth of the agreements require the discharged employee to appeal his case within a specified time—24 hours to 5 days—of notice of termination in order to receive further consideration. A few agree-

ments order that the case shall be disposed of within 5 days, and the Virginia Smelting Co. agreement requires the company to grant the dismissed worker a hearing within 48 hours, at which the employee may be represented by a union committee.

Reinstatement with back pay for a worker found to be unjustly discharged is specified in half the agreements. In three cases, the amount of back pay is to be jointly decided by the company and union. The United States Potash Co. and American Potash and Chemical Co. agreements limit the amount of back pay which is to start from the date the complaint is filed. The Potash Co. of America agreement absolves the company from back pay for the time resulting from delay caused by the union's failure to expedite arbitration.

Working Foremen

Sixteen agreements regulate productive work by foremen or other supervisory employees. Of these, most prohibit any work by foreman, except in an emergency or for instruction. The Pittsburgh Plate Glass (Columbia Chemical Division) agreement limits work by foremen to not more than 1 hour per week; and the Catalin Corporation agreement to not more than 20 percent of the time worked by regular employees, and then only if the work of the shift cannot be finished in time to fit in with the operations of other departments.

Apprenticeship

Provisions regarding apprentices are included in 13 agreements, most of which are with the larger companies. Seven agreements establish the apprenticeship period at 4 years; the remainder have 2- and 3-year periods. In one agreement, helpers with 4 years' actual experience as helper who can pass a regular examination for second-year apprentices are required to serve only 2 instead of 3 years of apprenticeship. One apprentice to every 10 journeymen is allowed in seven agreements; 1 to 5 in one agreement; a definite number for specified departments in another; and another provides a maximum of 1 to 4 journeymen, with the actual ratio determined by the company with the advice of the union committee. A few agreements permit at least 1 apprentice in a department, trade, or craft, where less than the number of journeymen required by the ratio are employed.

Six agreements specify the age limits for beginner apprentices—five have a range from 16 to 23 years—and one agreement, in which apprentices must be selected from among helpers in the craft with at least 2 years' service, sets an upper limit of 40 years. This agreement also specifies that applicants for apprenticeship shall be considered jointly by the craft committee and the company.

References to the training which apprentices are to receive are found in only eight agreements. Four merely contain a statement that apprentices shall be "given an opportunity to acquire a complete knowledge of the trade"; two provide for a joint union-management committee to work out an apprenticeship-training system and to conduct periodic examinations to test the apprentices' progress; and one (American Potash and Chemical Co.) provides that the company is to appoint an apprentice instructor to supervise the training of apprentices and that apprentices shall be rotated every 3 months among journeymen and spend a maximum of 6 months on any operation.

Three of the eight agreements also require that apprentices work only under a journeyman's supervision.

Six agreements specify that apprentices shall receive periodic wage increases—every 6 months, or, in one instance, yearly—until the journeyman's rate is reached. In two agreements with the Shell Chemical Co., negotiated by craft unions, the apprentice rate after the first 2 years of apprenticeship is to be negotiated between the company and union; these agreements also prohibit apprentices from working overtime until the last year of apprenticeship.

Military Service

Fifty-four of the 84 agreements refer to reemployment and seniority rights of employees who volunteer or are drafted for military service. Many of them include provisions similar to the Selective Service Act. Over half of these agreements specifically provide for cumulation of seniority during an employee's absence. The Michigan Alkali agreement provides that if no work is available on his return, an employee accumulates seniority not to exceed 1 year from the date of his discharge from military service. The Dow Chemical Co. (Great Western Division) agreement protects the promotional rights of a selectee when an employee who replaces him receives a promotion during his absence. On his return, the selectee is entitled to consideration for promotion if he applies within 30 days after his return and the qualifications of both employees are then referred to a bipartisan committee for consideration. In the event of disagreement, the case goes to arbitration.

Supplementary pay or a bonus to employees who are drafted or who volunteer for military service is provided under the American Cyanamid, American Potash and Chemical, Niagara Alkali, Vanadium Corporation (Niagara Falls, N. Y.), and eight additional agreements. In a few cases, these benefits are restricted to employees with a given length of service, either 6 months or 1 year. The sums paid vary from 1 week to 2 months' pay, 1 month being most common. Thirteen agreements, including five which grant supplementary pay, grant earned vacation pay to employees called for military service. The Niagara Alkali and Vanadium Corporation agreements (both at Niagara Falls, N. Y.) pay employees who lose time in order to take physical examinations for military service.

Pledges by the company to continue the group life insurance during an employee's term of military service, and to pay the employee's premium are found in the Keokuk Electro-Metals Co., Celluloid Corporation, and American Potash and Chemical Co. agreements. In the latter two agreements this obligation was to be terminated "if the United States became involved in hostilities."

Health, Safety, and Welfare

SAFETY AND HEALTH

Clauses relating to health, safety, and sanitation are contained in about half the agreements. Most frequently, they consist of pledges by the employers to make "reasonable" provisions for the employees' safety and health at the plant and for proper wearing apparel and devices and safety equipment to protect employees from injury. Dis-

putes arising under the clauses are generally handled through the regular grievance machinery. In order to maintain and enforce the safety standards in the plant, the Monsanto Chemical Co. (East St. Louis, Ill.), American Potash and Chemical, and two additional agreements provide a union safety committee and one other a joint safety committee.

PHYSICAL EXAMINATIONS

Under 12 agreements, all but 2 of which cover larger companies, employees may be required to undergo physical examinations authorized and paid for by the company prior to employment, at periodic intervals, or when rehired after a lay-off. Of these, 6 specifically state that the employee shall receive a copy of the report. Four agreements specifically allow an employee to appeal the findings of the company doctor through the regular girevance machinery. One agreement attempts to resolve a deadlock in such cases by providing that a doctor chosen from a list of five submitted by the president of the local medical association shall decide the issue.

HANDICAPPED WORKERS

In 18 of the agreements, senior employees who have given faithful service or who have become disabled in the course of employment are to be given preference on lighter work or work they are capable of handling, presumably at a lower wage. Only four agreements contain specific mention of the wage to be paid; one specifies the employee's previous rate of pay, one allows it to be set by the company, and the others provide for joint determination by the company, union, and employee involved. As indicated above, one agreement prohibits discharge because of age.

Adjustment of Disputes

While all the chemical agreements provide some machinery for the adjustment of disputes, and a large majority place restrictions on strikes and lock-outs during the term of the agreements, a substantial number do not provide for the final settlement of disputes by an impartial arbitrator.

GRIEVANCE ADJUSTMENT

About 32 percent of the agreements grant the employee the option of presenting grievances to the foreman alone or of being accompanied or represented by the shop steward or other union official. Twenty-two percent of the agreements specify the steward or union representative, without the employee, shall take up grievances with the foreman. The first-mentioned procedure is specified in the Diamond Alkali, Pittsburgh Plate Glass (Columbia Chemical Division), American Potash and Chemical, Celluloid Corporation, and Monsanto Chemical Co. (Everett, Mass.), agreements. The second-mentioned procedure is provided in the Michigan Alkali and other smaller agreements. In a few cases, including the large American Cyanamid Co. plant at Bound Brook, N. J., the aggrieved employee must accompany the shop steward to the foreman. The remaining 40 percent of the agreements stipulate that the employee is to take up any grievance with his foreman directly before taking it to the union. This pro-

cedure is found in the agreements of Dow Chemical Co. (Midland, Mich.), several Monsanto plants, Electro-Metallurgical Co., United States Potash Co., Potash Co. of America, and the Durez Plastics Co., the latter requiring the company to notify the union of the grievance before any action is taken.

If no settlement is reached with the foreman, most agreements provide that the matter shall be referred to the union grievance committee which meets with the plant management. If the grievance is not adjusted at this point, it is then generally referred to a national representative of the union, who takes the matter up with the responsible official of the company.

In order to forestall undue delay and protracted negotiations at any one stage of the negotiating process, approximately one-fourth of the agreements stipulate time limits for the handling of grievances and many of them provide for regular meetings between the union committee and the management. Two agreements specify that the union shall have access to necessary pay-roll and employment information for the purpose of investigating employees' grievances.

Most of the agreements specify the size of the union committee, the number specified varying from two to seven. In nine agreements, including Dow Chemical (Midland, Mich.), only employees of the company with seniority standing of from 1 to 4 years may be committee members and in one of these, only American citizens. Agreements covering 40 percent of all the workers under agreement provide that committeemen shall be paid for time lost in attending meetings with management. The Diamond Alkali agreement limits such payment to a maximum of 3 hours in 1 day or 4 hours in 2 consecutive days. Should the company hold a conference after working hours, one agreement provides that committeemen attending shall be paid for time so spent; and another requires payment at the overtime rate, with a minimum of 2 hours. Ten agreements specifically grant shop stewards sufficient time off without pay to carry out their duties or to attend committee meetings. One agreement specifies that the shop steward is to be paid $2 per week extra, presumably to compensate him for time lost in grievance work.

Members of the grievance committee have the right to visit departments other than their own on regular grievance business, generally after notice to the foreman of their department, according to 10 agreements, including Diamond Alkali, Vanadium Corporation (Niagara Falls, N. Y.), and Michigan Alkali. The latter agreement—the first negotiated between the company and union—provides for a grievance chairman who devotes his entire working time to the operation of the grievance machinery. He is paid by the company which provides him with an office and a telephone extension.

In a few cases, special protection against discrimination is given the shop steward and members of the shop committee. Nine agreements, including several for the larger plants, grant special preference to shop stewards and grievance committeemen by stipulating that they shall be the last to be laid off and the first to be returned after a shut-down. In another, the union reserves the right to negotiate with the company the seniority position of union officials and grievance committeemen during their term of office in the event they are affected by lay-offs.

ARBITRATION

Fifty-six of the 84 agreements analyzed, covering about 50 percent of the workers under agreement, provide for automatic impartial arbitration of unsettled disputes. In addition, two agreements with small companies specify that the United States Department of Labor, and one agreement, the New York State Board of Mediation, shall be called in to mediate any dispute which cannot be settled directly. Under one agreement, the union is obligated to call in a State or national conciliator in an attempt to settle a dispute before resorting to strike action. The Diamond Alkali and Pittsburgh Plate Glass (Columbia Chemical Division) agreements set up a permanent joint labor relations committee, composed of representatives from both sides, to whom grievances are referred for settlement; however, no arbitration to resolve any deadlock is provided.

Five other agreements call for arbitration only by mutual consent of both parties. Among the latter, however, the Celluloid Corporation agreement provides that cases involving discrimination, suspensions, demotions, or discharges shall be submitted to arbitration automatically. If no agreement can be reached to arbitrate matters other than those specified, the party proposing arbitration may, within 1 week after the refusal of the other party to agree to such arbitration, give 30 days' notice of its intention to cancel the agreement. Such notice of cancelation must be authorized and approved by the national office of the union or by the president and works manager of the company.

Among the major agreements which do not provide for arbitration are the Dow Chemical Co. (Midland, Mich.), Southern Alkali Co., Michigan Alkali Co., and American Cyanamid (Bound Brook, N. J.). With but one exception, which contains no work-stoppage prohibition, work stoppages are restricted until the grievance machinery has been exhausted, but thereafter a strike or lock-out may be resorted to if either party remains dissatisfied.

A majority of the arbitration provisions establish the arbitration procedure, although three leave the exact procedure to be mutually agreed upon at the time of reference. Most frequently, a tripartite arbitration board consisting of one or two representatives chosen by each side, together with a jointly selected impartial chairman, is set up at the time of the dispute. In 11 cases, the impartial member is not added unless the bipartisan board is unable to reach a decision. Six agreements state that a dispute shall be referred to an individual or agency to be chosen by the parties at the time of the dispute. In one of these, should the parties fail to agree on an impartial arbitrator, they must appoint a bipartisan board to make the selection.

When the two parties are unable to agree upon the person to act as impartial chairman and no provision is made for outside assistance to select such a person, the entire arbitration machinery may fail through default. In 22 agreements, or almost half of those which leave the choice of impartial chairman to be determined at the time of the dispute, an outside agency or individual is designated to make the selection if the employer and the union, or their representatives as the arbitration committee, are unable to reach an agreement within a specified time—usually 3 to 10 days. Eight agreements designate the Conciliation Service of the United States Department of Labor; others,

the Commissioner of Labor and Industries of Massachusetts, specified judges or individuals, and the American Arbitration Association.

Seven agreements obviate the need for choosing an arbitrator at the time of the dispute by specifying an impartial person or agency to arbitrate the dispute or to designate an arbitrator. In one case an individual is specified; in two cases the Massachusetts State Board of Arbitration and Conciliation; in another case the American Arbitration Association; and in three cases the United States Conciliation Service.

Some of the agreements require a decision within a specified time after the matter goes to arbitration, or state that the decision shall be made either "promptly" or "within a reasonable time."

Generally, arbitration may be invoked only in connection with the application or interpretation of matters specifically covered by the agreement. Under five agreements wage rates are explicitly excluded from arbitration. The Niagara Alkali Co. and two Vanadium Co. plants also exclude the question of "enlargement or extension of the scope of the status of the union." One agreement further prohibits the arbitration board from giving a decision on any matter not originally submitted to it and another exempts amendments or renewals of the existing agreement.

Strikes and Lock-Outs

Over half the agreements prohibit stoppages of work for the entire life of the agreement. All but one of these provide for arbitration. In three agreements the no-strike provision is waived if either party refuses to join in the arbitration proceedings or to abide by the arbitration decision, or where both parties fail to agree on the arbitration procedure or on a mutually agreeable arbitrator for the final disposition of the dispute. One of these latter agreements also requires a majority vote by union members and 2 weeks' advance notice to the company of intention to strike before a strike is called.

In about 30 percent of the agreements, stoppages are prohibited only until all the steps in the grievance machinery have been exhausted without arriving at a settlement. In four of these agreements, automatic arbitration is included in the grievance machinery; in three, arbitration is optional. Three of the agreements which do not provide for arbitration impose additional restrictions. A maximum period of 60 days during which efforts to settle the grievance must be made is set by one agreement. Another agreement prohibits strikes and lock-outs until 2 weeks after the grievance machinery has been exhausted and the international union has authorized a strike and notified the company.

The Michigan Alkali Co. agreement requires, in addition to a majority vote by secret ballot under the supervision of the national union, that the union post a notice stating the matter in dispute 3 days before the election is held. The company retains the privilege of posting its views. If a strike is voted, the international union president or his representative shall authorize the strike, give the company written notice of the date, and confer with the company president or his representative. The company agrees to cease production in case of an authorized strike and further agrees not to lock out the employees. The Diamond Alkali and Pittsburgh Plate Glass (Columbia Chemical Division) agreements prohibit strikes until a

national officer of the union has conferred with company officials after having been furnished with a full statement of the dispute by a bipartisan grievance committee.

Under eight agreements which prohibit or restrict stoppages, including some of the major companies, the union agrees to protect company property in the event of a strike or suspension of work. In seven agreements, the union agrees to permit maintenance employees to work the necessary time to stop operations without damage to the equipment. In the other, a union committee is allowed to inspect the plant to see that no production is being carried on. In addition, necessary "protective production" in specified departments is to be performed by a union committee.

The disciplining of irresponsible members who stop work in violation of the agreement is provided for in five instances; in one of these, the extent of the disciplinary action must be mutually approved by the union and the company. Under one agreement, the union undertakes to enforce the "no-strike" provision by disavowing the strike and penalizing its members who participate in the stoppage.

NEW SHIPBUILDING STABILIZATION AGREEMENT

THE four shipbuilding zone agreements which went into effect between April and September 1941 aimed to reduce the prevailing variations in rates and provide a systematic and periodical review of general wage levels in the industry.[1] It was agreed that the zone standards would prevail at least 2 years and thereafter by mutual agreement,[2] with interim wage adjustments in relation to cost of livfng to be considered at the end of the first year. The base index to be used in the first adjustment was that effective at the time the agreement was signed in the case of the Gulf and Pacific agreements, and that effective 6 months after the agreement was signed in the case of the Atlantic and Great Lakes agreements. Further adjustments were to be considered every 6 months, whenever the cost of living increased 5 percent or more.[3]

The zone agreements established basic hourly rates for "skilled mechanics." Rates to be paid other workers and the definitions of occupations to be included in the standard skilled class were to be determined by local collective bargaining and to be based on conditions prevailing in each major area. The rate established for "skilled mechanics" in the Atlantic, Pacific, and Great Lakes areas was $1.12, and in the Gulf coast area $1.07.

At the end of the first year of the Pacific coast agreement, the cost of living had risen almost 13 percent and wage adjustments were, therefore, to be made for this area. Because the zone agreements became effective at different dates and because the amount

[1] The original zone agreements were negotiated under the sponsorship of the Office of Production Management. *See* Monthly Labor Review May 1941 (p. 1162) and October 1941 (p. 880).

[2] The Pacific agreement was to continue 2 years or for the duration of the national emergency, whichever was longer.

[3] The Gulf and Pacific agreements allowed wage adjustments only at the end of 1 year and every 6 months thereafter. The Atlantic agreement provided that if, at the end of the first year or subsequent 6-month intervals, the cost of living had not risen 5 percent, then adjustment would be made at the end of any later month when the cumulative change in cost of living was 5 percent or more. Thereafter, further adjustments should not be made for another 6 months. The Great Lakes agreement provided that if at the end of a year the cost of living had not risen 5 percent, adjustment should be effective at the end of any succeeding month when the cumulative change in cost of living became 5 percent or more, but that thereafter wages should be adjusted only every 6 months if the cost of living had risen 5 percent.

of change in the cost of living varied in the different "base" periods, the wage rates that would have been put into effect according to the terms of the agreements would have varied from area to area. In order to establish greater uniformity, a National Shipbuilding Conference was held in May 1942 to consider wage adjustments in all four zones.

By the spring of 1942 broad plans were put into effect to control rising living costs. When the National Shipbuilding Conference[4] met, President Roosevelt sent a letter, which read in part:

> The situation that now confronts you is that the full percentage wage increase for which your contracts call and to which, by the letter of the law, you are entitled, is irreconcilable with the national policy to control the cost of living. * * * I suggest that you * * * work out a plan by which this conflict may be resolved, so that * * * living standards of all persons of modest income may be preserved against an inflationary rise in the cost of living.

The shipbuilding conference, in response to the President's appeal, agreed to rescind and eliminate from the zone standard agreements the provisions for automatic adjustments in the wage rates in proportion to changes in the cost of living. Instead of relating wages to the cost of living, the conference agreed to specific wage increases. For "standard first-class skilled machinists" the wage rate established was $1.20 for all zones. This abolished the previous differential between the Gulf coast and other areas. For other workers, wages were raised 8 cents per hour, except in the Gulf coast area where increases were provided ranging from 9 cents for lowest-paid jobs up to 13 cents for the highest. It was further agreed that all wage increases would be received in the form of United States Savings Bonds, which should not be cashed except in case of extreme emergency.

The conference also agreed to extend the agreement already accepted for the Pacific coast to eliminate double-time rates for Saturday and Sunday work as such. Under the new terms time and one-half is to be paid for the sixth continuous day, and double time for any seventh day in an employee's regularly established week. Time and one-half is allowed for all work on those holidays prescribed in existing local agreements. Employees are permitted to accept pay in lieu of vacations to which they are entitled under existing agreements.

The amended agreements will remain in effect until the termination of the national emergency. The new wage rates are effective on the dates established in existing agreements, namely April 1 on the Pacific coast, June 2 in the Great Lakes zone, June 23 on the Atlantic coast, and August 1 in the Gulf zone. A review of the wage rates is to be made on or about June 1, 1943, and thereafter annually. However, if before October 1, 1942, it is determined by the Shipbuilding Stabilization Committee that the program to control the cost of living has not achieved its purpose, then a special wage review shall be conducted.

STABILIZATION OF WAGES IN BUILDING INDUSTRY

THE building-trades unions of the American Federation of Labor recently agreed to stabilize wages on Federal projects as of July 1, 1942, for the duration of the war, at the rates in effect under collective-

[4] The Conference was composed of representatives of the War Production Board, Navy Department, Maritime Commission, American Federation of Labor, Congress of Industrial Organizations, and Shipyard Employers.

bargaining agreements. This agreement applies to all war construction work done for or financed by the United States except non-Federal construction where State laws govern wage rates. Adjustments of such wages are permitted upon the recommendation of a wage adjustment board, which was established by the Secretary of Labor under the Davis-Bacon Act.

Under this act, laborers and mechanics employed on public buildings and works must be paid minimum wages based upon the prevailing rate of wages as determined by the Secretary of Labor. The agreement requires that the Secretary accept as prevailing for the duration of the war those wages which were prevailing on July 1, 1942.

The rates paid under collective-bargaining agreements on July 1, 1942, are subject to revision, however, where the rates are inadequate, because—

(*a*) They were fixed at a time so long before July 1, 1942, as to be out of line with the general wages prevailing;
(*b*) They were applicable in a locality where changing conditions in the building-construction industry require a revision of wage rates; or
(*c*) They do not sufficiently take into account any abnormal change in conditions.

Immediately following the agreement, an administrative order establishing a Wage Adjustment Board for the Building Construction Industry was issued by the Secretary of Labor, with the President's approval. The Board is authorized to recommend adjustments in the wage rates in the building industry and to request the Solicitor of the Department of Labor to investigate and report on prevailing wage rates and their relation to the cost of living. The Assistant Secretary of Labor was made chairman of this board, and the following persons were appointed as members:

Representing the Building Construction Trades Department of the American Federation of Labor: John Coyne, president, Building Construction Trades Department; Harry C. Bates, president, Bricklayers, Masons, and Plasterers International Union; Robert Byron, president, Sheet Metal Workers International Union.

Government Contracting Agencies: Navy Department—Lt. Charles D. Pennebaker; Defense Plant Corporation (RFC)—Morton McCartney; War Department—Lt. Col. Clarence D. Barker.

The text of the Secretary's order establishing the Wage Adjustment Board is as follows:

To accomplish the purpose of the act of March 3, 1931, as amended by the act of August 30, 1935, and of section 1 (a) of the act of January 30, 1942 (Pub., No. 421, 77th Cong.), and to provide machinery for the wage stabilization agreement of the international and national labor organizations in the building construction industry, it is hereby ordered:

1. The Wage Adjustment Board for the Building Construction Industry, hereafter called the Board, is established in the United States Department of Labor. The Board shall consist of a chairman, to be appointed from the Department of Labor, and of three representatives of the contracting agencies of the United States and of three representatives of the labor organizations in the building construction industry, to be named by me from time to time. A majority of members of the Board shall constitute a quorum.

2. The Board shall have power to investigate and to recommend an adjustment of wage rates under the above agreement of the labor organizations in the building construction industry. It shall consider requests for wage adjustments presented by local labor organizations with the approval of the international or national labor organization, and when submitted through and approved by the Building Trades Department of the American Federation of Labor. It shall have power to make the necessary rules of procedure. The Board's recommendation with respect to a request for wage adjustment shall be transmitted to the Secretary

of Labor, to the Building Trades Department, and to any interested contracting agency of the United States.

3. Upon request of the Board, the Solicitor of the Department of Labor shall conduct an investigation, hold any necessary hearings, and make a report to the Board as to the prevailing rates of wages for any or all classes of laborers and mechanics in the building construction industry in any locality, or as to the relation of such wage rates to those generally prevailing in the industry, trade, or locality, or as to the relation of such wage rates to the cost of living.

4. In determining the prevailing rates of wages under the act of March 3, 1931, as amended by the act of August 30, 1935, I shall, unless compelling evidence to the contrary be presented, accept as prevailing those wage rates which were prevailing on July 1, 1942, unless adjusted by recommendation of the Board under paragraph 2 hereof.

Industrial Disputes

RECENT STRIKES

THE Bureau's preliminary estimates show a small decline in strike activity in May 1942 as compared with April, and a substantial decline as compared with May a year ago. Although the number of workers involved in new strikes was about the same as in the preceding month, the number of strikes occurring in May was 11 percent lower than in April and the amount of strike idleness during May was 13 percent lower.

Although the number of new strikes in May was nearly three-fifths as great as in May 1941, both the number of workers involved and the amount of strike idleness were less than one-fifth as great as in May last year.

Trend of Strikes, January to May 1942

Month	All strikes [1]			Strikes affecting war work [2]		
	Number of strikes beginning in month	Number of workers involved	Number of man-days idle	Number of strikes beginning in month	Number of workers involved	Number of man-days idle
1942						
January	155	32,500	390,000	27	11,605	46,197
February	190	57,000	425,000	50	24,587	118,700
March	240	65,000	450,000	66	34,957	166,680
April	310	55,000	375,000	91	26,255	173,513
May	275	58,000	325,000	125	44,891	137,330

[1] Figures are not final, but are subject to change as later information is received.

[2] As determined by a Joint Committee of representatives from the War, Navy, and Labor Departments, Maritime Commission, War Labor Board, and War Production Board. The Bureau of Labor Statistics does not participate in the selection of these strikes, but it does furnish the statistics after the Joint Committee determines which strikes affected war work.

The number of strikes affecting war work in May was greater than in any of the preceding months. However, most of these strikes were of comparatively short duration and there was less strike idleness on war work as a result than during the strikes in either March or April—18 percent less than in March and 21 percent less than in April.

The largest strikes beginning in May, in terms of number of workers involved, were (1) the 1-day strike over wage-increase and union-security issues on May 1, involving nearly 5,000 elevator operators and building-service employees in New York City, which was called off at the end of the day at the request of the National War Labor Board; (2) the short strike of nearly 3,000 workers at textile dyeing and finishing plants in Connecticut and Rhode Island, which was called off when certified to the War Labor Board where the wage-increase

demands were to receive consideration; and (3) a strike involving about 2,000 workers at the Kimble Glass Co., in Vineland, N. J., which was terminated after 1 day pending further negotiations on increased wage rates.

ACTIVITIES OF THE UNITED STATES CONCILIATION SERVICE, MAY 1942

THE United States Conciliation Service, during May disposed of 968 situations involving 473,135 workers (table 1). The services of this agency were requested by the employers, employees, and other interested parties. Of these situations 126 were strikes and lock-outs involving 26,448 workers; 515 were threatened strikes and controversies involving 247,051 workers. Forty-six disputes were certified during the month to the National War Labor Board, and jurisdiction was assumed by other agencies in 43 others. The remaining 238 situations included investigations, arbitrations, requests for information, consultations, etc.

The facilities of the Service were used in 29 major industrial fields, such as building trades, and the manufacture of foods, iron and steel, textiles, etc. (table 2), and were utilized by employees and employers in 48 States, Alaska, the District of Columbia, and Puerto Rico (table 3).

TABLE 1.—*Situations Disposed of by United States Conciliation Service, May 1942, by Type of Situation*

Type of situation	Number	Workers involved
All situations handled	968	473,135
Disputes	641	273,499
Strikes	122	26,154
Threatened strikes	151	70,721
Lock-outs	4	294
Controversies	364	176,330
Other situations	238	49,735
Investigations	69	16,833
Technical services	10	3,544
Arbitrations	71	22,725
Requests for verification of union membership	1	591
Consultations	70	609
Special services of Commissioners	17	5,433
Disputes referred to other agencies during negotiations	89	149,901
To National War Labor Board	46	142,349
To National Labor Relations Board	36	5,468
To other Federal agencies	4	1,904
To nongovernmental agencies	3	180

TABLE 2.—*Situations Disposed of by United States Conciliation Service, May 1942, by Industries*

Industry	Disputes		Other situations		Total	
	Number	Workers involved	Number	Workers involved	Number	Workers involved
All industries	731	423,340	237	49,795	968	473,135
Agriculture	1	250	1	8	2	258
Automobile	1	1,600	1	6	2	1,606
Building trades	57	22,255	34	2,879	91	25,134
Chemicals	21	11,245	6	541	27	11,786
Communications	9	5,063	1	2	10	5,065
Domestic and personal	13	2,292	6	584	19	2,876
Electrical equipment	20	27,742	9	1,373	29	29,115
Food	73	58,394	16	4,521	89	62,915
Furniture and finished lumber	25	4,472	5	304	30	4,776
Iron and steel	98	28,190	26	6,458	124	34,648
Leather	19	5,454	13	802	32	6,256
Lumber	20	6,745	5	267	25	7,012
Machinery	54	28,097	4	49	58	28,146
Maritime	2	448	2	57	4	505
Mining	9	3,579	1	250	10	3,829
Motion pictures	2	247			2	247
Nonferrous metals	30	19,953			30	19,953
Paper	13	4,522			13	4,522
Petroleum	14	17,725	5	4,737	19	22,462
Printing	12	1,035	2	21	14	1,056
Professional	1	25,000	1	1	2	25,001
Rubber	11	39,947	2	650	13	40,597
Stone, clay, and glass	33	6,386	9	901	42	7,287
Textile	54	37,993	38	4,031	92	42,024
Tobacco	3	5,312	3	1,059	6	6,371
Trade	29	3,571	4	721	33	4,292
Transportation	36	13,758	18	7,139	54	20,897
Transportation equipment	38	36,196	7	7,346	45	43,542
Utilities	10	2,338	2	701	12	3,039
Unclassified	23	3,531	16	4,387	39	7,918

TABLE 3.—*Situations Disposed of by United States Conciliation Service, May 1942, by States*

State	Disputes		Other situations		Total	
	Number	Workers involved	Number	Workers involved	Number	Workers involved
All States	731	423,340	237	49,795	968	473,135
Alabama	23	6,661	6	1,277	29	7,938
Alaska	1	260	1	260	2	520
Arizona	2	170	1	30	3	200
Arkansas	5	1,475	4	808	9	2,283
California	51	53,492	8	3,620	59	57,112
Colorado	2	660	4	161	6	821
Connecticut	8	8,340	2	161	10	8,501
Delaware	1	107			1	107
District of Columbia	11	868	9	649	20	1,517
Florida	21	1,968	11	134	32	2,102
Georgia	8	706	6	758	14	1,464
Idaho	1	690			1	690
Illinois	39	41,747	18	6,390	57	48,137
Indiana	35	12,220	7	1,520	42	13,740
Iowa	6	2,075	3	1,139	9	3,214
Kansas	3	190	4	466	7	656
Kentucky	3	266			3	266
Louisiana	8	1,602	3	516	11	2,118
Maine	4	1,080	3	87	7	1,167
Maryland	16	2,490	8	6,313	24	8,803
Massachusetts	27	20,907	23	2,887	50	23,794
Michigan	47	16,063	11	5,070	58	21,133
Minnesota	14	1,020	1	13	15	1,033
Mississippi	5	1,442			5	1,442
Missouri	21	2,649	5	1,251	26	3,900
Montana	3	919			3	919

TABLE 3.—*Situations Disposed of by United States Conciliation Service, May 1942, by States*

State	Disputes		Other situations		Total	
	Number	Workers involved	Number	Workers involved	Number	Workers involved
Nebraska	5	578			5	578
Nevada	4	981			4	981
New Hampshire	3	777			3	777
New Jersey	29	10,838	4	850	33	11,688
New Mexico	3	1,042	1	20	4	1,062
New York	66	77,063	22	2,680	88	79,743
North Carolina	7	5,045	7	105	14	5,150
North Dakota						
Ohio	90	49,978	12	5,297	102	55,275
Oklahoma	7	16,394	2	10	9	16,404
Oregon	7	1,740	2	26	9	1,766
Pennsylvania	67	39,395	13	2,338	80	41,733
Puerto Rico	3	2,812	6	2,751	9	5,563
Rhode Island	4	5,784	2	667	6	6,451
South Carolina	5	2,415	6	47	11	2,462
South Dakota			3	159	3	159
Tennessee	12	2,048	4	237	16	2,285
Texas	16	5,683	2	129	18	5,812
Utah			1	60	1	60
Vermont	1	547			1	547
Virginia	5	5,841	4	20	9	5,861
Washington	7	2,593			7	2,593
West Virginia	9,	3,009	3	210	12	3,219
Wisconsin	16	8,710	4	677	20	9,387
Wyoming			1	2	1	2

EMERGENCY BOARDS FOR ADJUSTMENT OF RAILROAD LABOR DISPUTES

THE President recently issued an Executive order designed to speed final settlement of disputes under the Railway Labor Act. The order provides for the creation of emergency boards without the necessity of waiting until strike votes are conducted and actual dates are set for strikes.

The order provides for a National Railway Labor Panel of nine members, from which an emergency board of three will be chosen whenever a union states, and the chairman of the panel finds, the existence of a dispute on a railroad which threatens to interfere with war production. The members of the panel are selected by the President and will serve as fact-finding boards in rail labor disputes.

Under the Railway Labor Act, if mediation and arbitration fail to settle a dispute, a strike vote must be taken and a strike date set before the President can appoint an emergency fact-finding board to investigate the dispute and make a report. The Executive order does not seek to amend the law, but merely establishes a panel for the duration of the war which will provide a means of settling disputes without strikes.

Members of the panel selected by the President are as follows: William M. Leiserson, chairman; William H. Spencer, dean, University of Chicago; Judge Walter P. Stacey of Raleigh, N. C.; Judge Wiley Rutledge, Associate Justice, United States Court of Appeals, District of Columbia; Dr. Edwin E. Witt, University of Wisconsin; Walter T. Fisher of Chicago; John A. Lapp of Chicago: John A.

Fitch, New York School of Social Work; and Norman Ware, member of the Connecticut State Board of Mediation and Arbitration.

The text of the Executive order, which was issued on May 21, 1942, is as follows:

Whereas, section 5 of the Railway Labor Act, as amended (ch. 8, title 45, U. S. C.), provides that for a period of 30 days after mediatory efforts of the National Mediation Board have failed to settle a dispute "no change shall be made in the rates of pay, rules, or working conditions or established practices in effect prior to the time the dispute arose"; and

Whereas, duly designated and authorized representatives of employees may, during this 30-day period, take a strike vote and fix a date for the strike to become effective; and

Whereas, section 10 of the said Railway Labor Act requires the National Mediation Board to notify the President if an unadjusted dispute threatens, in its judgment, substantially to interrupt interstate commerce to a degree such as to deprive any section of the country of essential transportation service, and provides that upon receipt of such notification the President may, in his discretion, create a board to investigate and report respecting such dispute; and

Whereas, the national interest demands that for the effective prosecution of the war there shall be no strike votes taken, or dates fixed for the beginning of strikes, or strikes, lock-outs, or embargoes put into effect, which would affect the transportation industry covered by the Railway Labor Act.

Now, therefore, by virtue of the authority vested in me by the Constitution and the Statutes of the United States, and in order to adjust the policies and procedures under the said act to the requirements of the war emergency, it is hereby ordered as follows:

1. There is hereby created, for the duration of the war and 6 months thereafter, a National Railway Labor Panel of nine members, hereinafter referred to as the panel, to be appointed by the President, and to be qualified as to membership thereon in the same manner as provided in section 10 of the Railway Labor Act for membership on emergency boards. The President shall designate a chairman from the members of the panel and shall fill vacancies thereon as they may occur. The chairman of the panel shall receive such compensation, together with necessary traveling expenses, as the President may prescribe. The members of the panel shall receive necessary travel expenses and subsistence expenses or per diem allowances in lieu thereof on such days as they are actually engaged in performance of duties pursuant to this order.

2. Whenever a dispute between a carrier or carriers and its or their employees concerning changes in rates of pay, rules, or working conditions, or whenever any other dispute not referable to the National Railroad Adjustment Board, is not adjusted or settled under the provisions of sections 5, 6, 7, 8, and 9 of the Railway Labor Act, the duly designated and authorized representatives of employees involved in such dispute may, prior to notice by the National Mediation Board to the President of a threatened interruption to commerce, notify the chairman of the panel of the failure of the parties to adjust the dispute and of their desire to avoid the taking of a strike vote and the setting of a strike date. If, in the judgment of the chairman of the panel, the dispute is such that if unadjusted, even in the absence of a strike vote, it may interfere with the prosecution of the war, he may thereupon select three members of the panel to serve as an emergency board to investigate such dispute and to report thereon to the President. Subject to the provisions of section 10, such board shall have exclusive and final jurisdiction of the dispute and shall make every reasonable effort to settle such dispute.

3. The National Mediation Board shall furnish the panel stenographic, investigative, and such other facilities as may be necessary; and within the limits of the funds provided, and upon the certification of the chairman of the panel, shall make such other disbursements as are necessary to effectuate this order.

467211—42——7

Housing Conditions

NEW DWELLING UNITS IN NONFARM AREAS, FIRST QUARTER OF 1942

Summary

CONSTRUCTION of new residential buildings for 141,000 nonfarm families was started during the first 3 months of 1942, a decrease of 3 percent from the number during the same period of last year. This drop, caused by a 9-percent decrease in new construction by private builders, largely reflects the uncertain materials situation and the imminence of Government restrictions upon nonessential building. Of the 111,000 dwelling units put under construction by private builders during this period, less than 40 percent had priority ratings for building materials from the War Production Board.

Publicly financed projects for which construction contracts were awarded during the first 3 months of 1942 will contain accommodations for 29,364 families, or 21 percent of the nonfarm total. All but 615 units in a project not assisted with Federal funds are for war workers. During the first 3 months of 1941, 22,297 units were in publicly financed projects, of which all but 5,064 units are for war workers. By the end of March 1942, the Federally financed war housing program had completed or had under construction contract a total of 148,550 dwelling units in continental United States.

Although 1- and 2-family units decreased 6 and 13 percent, respectively, from the first quarter of 1941 totals, multifamily units increased 22 percent. However, for privately financed units alone, decreases from the number during the same period of last year were shown in each type of unit, the largest, 30 percent, appearing in apartment units. During the current period approximately 79 percent of the nonfarm dwelling units were 1-family houses; 5 percent, 2-family houses; and 16 percent, apartments.

Scope of Report

The "nonfarm area" of the United States consists of the aggregate of urban and rural nonfarm places. The urban designation is applied to all incorporated places with 1940 population of 2,500 or greater, and also, by special rule, to a small number of unincorporated civil divisions. In the class of rural nonfarm construction is placed all activity for nonagricultural use in unincorporated areas and in incorporated places of less than 2,500 population. Thus, whereas urban construction actually corresponds to a definite area, rural nonfarm construction depends for its classification upon the intended use of the individual buildings.

Building-permit reports collected by the Bureau of Labor Statistics have provided the basic information for current estimates of residen-

tial construction. The Bureau began the regular collection of these data in 1920, at first including only the larger cities. Since that time coverage of the sample has been steadily expanded until it now includes more than 2,400 urban cities and 1,000 rural incorporated places. In addition to the sample of cities, since 1939 a small number of counties have reported building permits issued in their unincorporated areas. Since building permits are issued when construction work is about to start, estimates derived from permits represent future dwelling-unit capacity of buildings upon which construction work was started in the period specified. No attempt is made here to estimate the number of family accommodations gained by alterations and conversions or those lost by demolition.

Volume of New Residential Construction

Building permits issued in nonfarm areas and contracts awarded for public housing indicate that construction was started on approximately 141,000 new family-dwelling units during the first quarter of 1942. This represented a drop of 3 percent from the total during the corresponding period of 1941. As compared with the fourth quarter of 1941, the current volume of new construction work started showed an increase of 4 percent.

The uncertain materials situation and fear of more stringent governmental restrictions on nonessential building, which might leave them stranded with uncompleted projects, caused many private builders to curtail their operations during the first 3 months of this year. As a result, the total of 111,000 new privately financed units put under construction in this period was 9 percent smaller than the number during either the first or the fourth quarter of 1941.

In order to assist builders in getting materials for badly needed housing in designated areas, the War Production Board in September of 1941 instituted a system of priorities. The Federal Housing Administration through its regional offices was selected to handle the operations involved. By the end of March 1942 applications for priorities covering 184,000 dwelling units were approved by the WPB and work was in progress or completed on approximately 100,000 of then. Since applications were approved to aid some builders to complete houses under construction, 40,000 of these 100,000 units were started before September 1941.

Exact figures on the number of units started with priority aid during the first 3 months of 1942 are not available. However, from data released by the FHA it may be estimated that the total of units so started in the first quarter of this year was not much over 40,000. Thus, of all new privately financed units upon which construction was started during the first 3 months of this year, less than 40 percent had priority assistance in getting materials. In succeeding months the situation will be somewhat different because of the WPB order of April 9th, prohibiting all nonessential residential construction costing more than $500 unless priorities approval or permission to go ahead is first secured.

On February 24th the President issued an Executive order grouping all Federal agencies dealing with housing into one organization, the National Housing Agency, to include three branches—Federal Public Housing Authority, Federal Housing Administration, and Federal Home Loan Bank Administration. All authority and funds for

public housing were placed under the jurisdiction of the FPHA, which absorbed the many agencies previously in this field. In the quarter in which this reorganization was being effected, contracts were awarded for 29,364 units in public projects, which were more than double the total for the preceding quarter and a third larger than that for the first 3 months of 1941.

Of the new publicly financed projects during the first 3 months of 1942, 27,749 units were under the authority of the FPHA and were designated for war workers or families of military personnel. They included 10,112 units in slum-clearance projects converted to war housing, 8,246 units in projects initiated with Defense Homes Corporation funds, and 9,391 units financed with special war-housing appropriations. The only other publicly financed units started during this period were a thousand units being built with Defense Plant Corporation funds near Las Vegas, Nev., for workers at the new magnesium plants and a 615-unit project being built by the New York Cith Housing Authority with State funds. During the first 3 months of 1941, 22,297 units were in publicly financed projects, of which all but 5,064 units were for defense workers.

Comparison by Population Group

Cities of 50,000 to 100,000 population had an increase of 61 percent in new dwelling units during the first quarter of 1942 as compared with the corresponding period of 1941, while cities of over 500,000 population showed no change. All other population groups, and the rural nonfarm area as well, experienced decreases from the same period of last year. When compared with the fourth quarter of 1941, the population groups which include cities above 50,000 population showed increases, while all groups with cities below 50,000 population, and the rural nonfarm areas as well, had decreases. A partial explanation of these shifts may be the curbs upon use of automobiles which place premiums upon new homes with easy access to public transportation systems. The number of new dwelling units upon which construction was started with private and public funds, during the first quarter of 1942 and the first and fourth quarters of 1941, are shown for each population group in table 1.

Approximately 35 percent of all privately financed units during the first 3 months of this year were in cities of over 50,000 population, 26 percent in smaller urban places, and 39 percent in rural nonfarm areas. During this same period, 61 percent of the public units were located in cities larger than 50,000 population, 15 percent in the remaining urban area, and 24 percent in rural nonfarm areas. The distribution by population group during the first quarter of 1941 showed that a greater proportion of the publicly financed units were located in small cities and rural areas. During that period only 35 percent of the public units were in cities of over 50,000 population, 27 percent in smaller urban places, and 38 percent in rural nonfarm areas.

One-family dwellings comprised approximately 79 percent of all units started in the first quarter of 1942; 2-family dwellings accounted for 5 percent; and apartment units, for 16 percent. During the first quarter of 1941, the composition of the new units was 82 percent, 1-family; 6 percent, 2-family; and 12 percent, multifamily. A decrease of 30 percent in privately financed multifamily units from the first quarter of 1941 to the first quarter of 1942 was more than offset

by several large publicly financed projects of this type. Consequently, the multifamily units in the nonfarm total for the first 3 months of 1942 were 22 percent above the number of the first 3 months of 1941, while 1- and 2-family units decreased 6 and 13 percent, respectively. For details on the distribution of the new dwellings by type of unit and population group for the first quarter of 1942 and the first and fourth quarters of 1941 see table 2.

TABLE 1.—*New Dwelling Units in Nonfarm Areas, First and Fourth Quarters of 1941 and First Quarter of 1942, by Population Group and Source of Funds*

Area and population group (1940 census)	Total			New dwelling units financed by—					
				Private funds			Public funds		
	First quarter 1942	Fourth quarter 1941	First quarter 1941	First quarter 1942	Fourth quarter 1941	First quarter 1941	First quarter 1942	Fourth quarter 1941	First quarter 1941
All nonfarm areas	140,600	135,600	145,100	111,236	122,742	122,803	29,364	12,858	22,297
Urban (cities)	90,100	80,800	91,700	67,869	71,092	77,924	22,231	9,708	13,776
500,000 and over	24,200	20,200	24,300	16,574	16,484	23,383	7,626	3,716	917
100,000 to 500,000	18,800	16,700	20,000	15,267	14,383	14,811	3,533	2,317	5,189
50,000 to 100,000	14,200	7,700	8,800	7,502	7,196	7,054	6,698	504	1,746
25,000 to 50,000	8,300	8,700	10,500	6,096	8,012	7,887	2,204	688	2,613
10,000 to 25,000	11,800	13,700	13,200	10,412	11,777	11,605	1,388	1,923	1,595
5,000 to 10,000	7,800	8,000	8,500	7,268	7,790	7,669	532	210	831
2,500 to 5,000	5,000	5,800	6,400	4,750	5,450	5,515	250	350	885
Rural nonfarm areas	50,500	54,800	53,400	43,367	51,650	44,879	7,133	3,150	8,521

TABLE 2.—*New Dwelling Units in Nonfarm Areas, First and Fourth Quarters of 1941 and First Quarter of 1942, by Population Group and Type of Dwelling*

Area and population group (1940 census)	Number of new dwelling units					
	All types			1-family		
	First quarter 1942	Fourth quarter 1941	First quarter 1941	First quarter 1942	Fourth quarter 1941	First quarter 1941
All nonfarm areas	140,600	135,600	145,100	111,500	117,000	118,900
Urban (cities)	90,100	80,800	91,700	64,700	64,600	68,000
500,000 and over	24,200	20,200	24,300	11,100	10,900	11,800
100,000 to 500,000	18,800	16,700	20,000	14,900	14,200	15,200
50,000 to 100,000	14,200	7,700	8,800	9,100	6,000	6,500
25,000 to 50,000	8,300	8,700	10,500	7,200	7,700	9,100
10,000 to 25,000	11,800	13,700	13,200	10,700	12,800	11,600
5,000 to 10,000	7,800	8,000	8,500	7,000	7,500	7,900
2,500 to 5,000	5,000	5,800	6,400	4,700	5,500	5,900
Rural nonfarm areas	50,500	54,800	53,400	46,800	52,400	50,900

Area and population group (1940 census)	Number of new dwelling units					
	2-family [1]			Multifamily [2]		
	First quarter 1942	Fourth quarter 1941	First quarter 1941	First quarter 1942	Fourth quarter 1941	First quarter 1941
All nonfarm areas	7,200	6,300	8,300	21,900	12,300	17,900
Urban (cities)	6,500	5,200	7,200	18,900	11,000	16,500
500,000 and over	2,000	1,900	1,800	11,100	7,400	10,700
100,000 to 500,000	2,100	1,400	2,200	1,800	1,100	2,600
50,000 to 100,000	700	600	1,300	4,400	1,100	1,000
25,000 to 50,000	600	400	600	500	600	800
10,000 to 25,000	500	400	700	600	500	900
5,000 to 10,000	400	300	300	400	200	300
2,500 to 5,000	200	200	300	100	100	200
Rural nonfarm areas	700	1,100	1,100	3,000	1,300	1,400

[1] Includes 1- and 2-family dwellings with stores.
[2] Includes multifamily dwellings with stores.

Comparison by Geographic Division

Changes between the first quarters of 1941 and 1942 in total number of new units put under construction differed widely from one geographic area to another. The East South Central States showed the largest increase, 30 percent, while the Mountain and the West South Central States had increases of 9 and 6 percent, respectively. The New England States experienced the largest decrease over the same period, 23 percent, although privately financed units alone rose 4 percent. Decreases of 8 percent were shown in the Pacific and Middle Atlantic areas.

Private builders in the Pacific, East North Central, and South Atlantic States started construction on approximately 20,000 new units in each area during the first 3 months of 1942. During both the first and fourth quarters of 1941, the Pacific States ranked first in private building with 25,000 and 23,000 new private units in the respective periods. The South Atlantic States led in public projects with 10,138 units in the first 3 months of 1942, of which 7,500 were in and around Washington, D. C. War housing demands in the Pacific and Middle Atlantic States likewise resulted in contract awards during this same period for 5,324 and 4,930 new public units, respectively. During the first quarter of 1941 the South Atlantic total of 8,388 public units also was far ahead of the totals in other areas. The estimates of new nonfarm units in each geographic area are shown separately for private and public units in table 3.

TABLE 3.—*New Dwelling Units in Nonfarm Areas, First and Fourth Quarters of 1941 and First Quarter of 1942, by Geographic Division and Source of Funds*

Geographic division	Total units			New dwelling units financed by—					
				Private funds			Public funds		
	First quarter 1942	Fourth quarter 1941	First quarter 1941	First quarter 1942	Fourth quarter 1941	First quarter 1941	First quarter 1942	Fourth quarter 1941	First quarter 1941
All divisions	140,600	135,600	145,100	111,236	122,742	122,803	29,364	12,858	22,297
New England	5,700	5,900	7,400	3,831	5,900	3,665	1,869	0	3,735
Middle Atlantic	20,200	20,200	21,900	15,270	17,857	20,615	4,930	2,343	1,285
East North Central	21,800	25,100	22,500	20,109	22,232	20,096	1,691	2,868	2,404
West North Central	7,100	8,500	6,900	7,100	7,890	6,207	0	610	693
South Atlantic	29,900	23,700	32,100	19,762	21,133	23,712	10,138	2,567	8,388
East South Central	10,400	8,200	8,000	8,028	7,750	7,221	2,372	450	779
West South Central	15,000	13,300	14,100	13,522	12,817	12,608	1,478	483	1,492
Mountain	4,900	4,000	4,500	3,338	3,819	4,036	1,562	181	464
Pacific	25,600	26,700	27,700	20,276	23,344	24,643	5,324	3,356	3,057

In past years the volume of apartment construction in the Middle Atlantic States, especially in New York City, has dominated the totals of all new multifamily construction in the United States. During the first 3 months of 1942, however, there were only 3,800 multifamily units provided in the Middle Atlantic area, or only 17 percent of the United States nonfarm total of this type. Apartment-house construction in New York City continued to drop off and applications were filed by private builders for only 1,615 units of this type during the first quarter of 1942 as compared with 6,172 for the same period last year. The tremendous jump in apartment-house construction in the South Atlantic States during the current period to

nearly half of the United States total was due to the large public projects around Washington, D. C. For privately financed construction alone, the Pacific States had the largest number of multifamily units, 4,100 out of a United States total of 11,200. Table 4 presents estimates for the first quarter of 1942 and the first and fourth quarters of 1941, by type of unit and geographic area.

TABLE 4.—*New Dwelling Units in Nonfarm Areas, First and Fourth Quarters of 1941 and First Quarter of 1942, by Geographic Division and Type of Dwelling*

Geographic division	Number of new dwelling units					
	All types			1-family		
	First quarter 1942	Fourth quarter 1941	First quarter 1941	First quarter 1942	Fourth quarter 1941	First quarter 1941
All divisions	140,600	135,600	145,100	111,500	117,000	118,900
New England	5,700	5,900	7,400	4,700	5,600	6,000
Middle Atlantic	20,200	20,200	21,900	15,100	17,100	13,600
East North Central	21,800	25,100	22,500	19,800	22,000	20,200
West North Central	7,100	8,500	6,900	6,100	8,200	5,800
South Atlantic	29,900	23,700	32,100	18,700	20,100	26,500
East South Central	10,400	8,200	8,000	8,800	7,200	6,900
West South Central	15,000	13,300	14,100	14,100	12,100	12,700
Mountain	4,900	4,000	4,500	4,500	3,600	4,000
Pacific	25,600	26,700	27,700	19,700	21,100	23,200

Geographic division	Number of new dwelling units					
	2-family [1]			Multifamily [2]		
	First quarter 1942	Fourth quarter 1941	First quarter 1941	First quarter 1942	Fourth quarter 1941	First quarter 1941
All divisions	7,200	6,300	8,300	21,900	12,300	17,900
New England	300	200	400	700	100	1,000
Middle Atlantic	1,300	1,200	1,100	3,800	1,900	7,200
East North Central	1,200	1,100	1,200	800	2,000	1,100
West North Central	200	100	500	800	200	600
South Atlantic	1,100	1,000	1,900	10,100	2,600	3,700
East South Central	1,300	600	900	300	400	200
West South Central	700	900	800	200	300	600
Mountain	200	200	200	200	200	300
Pacific	900	1,000	1,300	5,000	4,600	3,200

[1] Includes 1- and 2-family dwellings with stores.
[2] Includes multifamily dwellings with stores.

Estimated Permit Valuations

The permit valuation of the 141,000 new nonfarm dwelling units upon which construction was started during the first 3 months of 1942 is estimated at $470,500,000. This represents a decrease of 5 percent as compared with the same period of last year. Although the new units showed an increase during the current period over the total for the preceding quarter, the aggregate permit valuation was 1 percent smaller. This was because of the much greater proportion of low-cost public units in the current total than in the total of new units during the preceding period. One-family dwellings accounted for $383,600,000, or 82 percent of the current total; 2-family units for $19,500,000, or 4 percent; and apartment units for $67,400,000, or 14 percent.

Of the total permit valuations during the first 3 months of 1942, $365,900,000 was for privately financed dwellings and $104,600,000 for publicly financed war-housing projects. The contract awards for public projects include $99,100,000 being spent under the direction of the Federal Public Housing Authority. Of this, $35,600,000 were from slum-clearance appropriations, $31,200,000 were made available by the Defense Homes Corporation, and $32,300,000 came from special war-housing appropriations. The aggregate permit valuations of new nonfarm dwelling units during the first quarter of 1942 and the first and fourth quarters of 1941 are shown in table 5 by source of funds.

TABLE 5.—*Permit Valuation of New Dwellings in Nonfarm Areas, First and Fourth Quarters of 1941 and First Quarter of 1942, by Geographic Division and Source of Funds*

Geographic division	Estimated permit valuation (in thousands of dollars)								
	Total			Private funds			Public funds [1]		
	First quarter 1942	Fourth quarter 1941	First quarter 1941	First quarter 1942	Fourth quarter 1941	First quarter 1941	First quarter 1942	Fourth quarter 1941	First quarter 1941
All divisions	$470,548	$476,697	$493,973	$365,907	$429,962	$421,665	$104,641	$46,735	$72,308
New England	23,305	26,160	29,742	16,326	26,160	16,359	6,979	0	13,383
Middle Atlantic	78,860	85,462	88,081	60,380	76,025	83,795	18,480	9,437	4,286
East North Central	89,362	105,212	96,052	83,576	93,749	87,930	5,786	11,463	8,122
West North Central	21,992	29,055	23,061	21,992	26,733	20,473	0	2,322	2,588
South Atlantic	92,568	72,073	95,970	55,452	62,735	70,641	37,116	9,338	25,329
East South Central	26,946	18,981	18,816	17,841	17,593	16,201	9,105	1,388	2,615
West South Central	40,834	37,838	39,190	36,849	36,167	34,973	3,985	1,671	4,217
Mountain	15,124	11,939	13,000	9,295	11,317	11,650	5,829	622	1,350
Pacific	81,557	89,977	90,061	64,196	79,483	79,643	17,361	10,494	10,418

[1] Contract values.

Labor Laws and Court Decisions[1]

OVERTIME PROVISION OF PUBLIC CONTRACTS ACT MODIFIED

OVERTIME work without the payment of additional compensation is permitted in certain instances, under an amendment to the Walsh-Healey Public Contracts Act (Public, No. 552). Formerly, the act required the payment of overtime at the rate of time and one-half the basic wage for work in excess of 8 hours a day or 40 hours a week, without exception.

The amendment applies only to employees who are employed pursuant to a collective-bargaining agreement with a union certified as bona fide by the National Labor Relations Board. In such cases, employees may work up to 12 hours a day and 56 hours a week without being entitled to overtime compensation. The agreement must provide, however, that the employees shall not be employed more than 1,000 hours during any period of 26 consecutive weeks nor more than 2,080 hours during any period of 52 consecutive weeks. In the case of employment for 52 weeks, the employees must also be guaranteed an annual wage or annual employment.

COMPULSORY HEALTH-INSURANCE LAW ADOPTED BY RHODE ISLAND

BY THE enactment of a "cash sickness insurance" law, Rhode Island became the first State to put into effect a system of compulsory health insurance (Acts of 1942, ch. 1200). While this law does not provide for medical care, it provides needed cash compensation for unemployment caused by a worker's sickness disability. Until the passage of this legislation, the only forms of compulsory insurance against sickness in the United States were accident and occupational-disease compensation laws.

Coverage

This new law covers employees of all employers subject to the State unemployment-compensation act, and is administered by the unemployment-compensation board. On and after April 1, 1943, an individual becomes eligible for benefits under the act, after a waiting period of 1 week, if his unemployment is due to sickness and if he has been paid wages of at least $100 in covered employment during the preceding calendar year, which is termed his "base period." Disqualifying conditions are also prescribed in certain cases; for example, where the claimant is receiving unemployment benefits.

[1] Prepared in cooperation with the Division of Labor Standards, U. S. Department of Labor.

Payment of Benefits

Benefits are paid through the employment offices or other approved agency and are based on "benefit credits" established by the worker during his base year. The total benefit credits allowable in any base year, as under the unemployment-compensation act, range from $34 to $364.50, depending on the base-period wages. Benefit payments, as under the unemployment-compensation act, are made at the rate of from $6.75 to $18 a week, depending on the worker's highest quarterly wages during the base period.

Procedure

A worker is deemed to be sick in any week in which, because of his physical or mental condition, he is unable to perform any service for wages. Applications for sickness benefits are filed at the local employment office, which makes the initial determination. Impartial referees are appointed to hear and decide disputed claims, and appeals from their decisions may be made to the board, whose decision is final, subject, however, to court review. The board is authorized to require any benefit claimant to submit to a reasonable physical examination.

Contributions

The sickness-compensation fund consists of all contributions and interest, and certain penalties, and is administered by the State unemployment-compensation board. Contributions under the act are required from the employee only with respect to employment after June 1, 1942, at the rate of 1 percent of his wages up to $3,000 in any calendar year. Employers are responsible for withholding such contributions at the time wages are earned or paid and for transmitting these contributions to the fund.

COURT DECISIONS OF INTEREST TO LABOR

Wage and Hour Law Coverage Extended

THE Supreme Court has broadened the definition of interstate commerce under the wage and hour law to cover employees engaged in the operation and maintenance of a loft building in which large quantities of goods are produced for interstate commerce.[2] The high court, in two cases, was called upon to consider the scope of the Wage and Hour Act in relation to a particular phase of industrial activity. The decision concerned certain service employees, such as elevator men, firemen, engineers, watchmen, porters, and electricians and carpenters, employed in loft buildings in New York and Philadelphia. The Administrator considered these employees to be within the act because of their relationship to the activities of the tenants, and brought suits to enjoin the tenants from violating the act by paying

[2] *Kirschbaum* v. *Walling* (62 Sup. Ct. 1116).

wages at lower rates than those fixed by the act. The company contended that the employees must themselves participate in the physical process of the making of goods before they can be regarded as engaged in production. The high court did not agree with this contention and added:

> In our judgment, the work of the employees in these cases had such a close and immediate tie with the process of production for commerce, and was therefore so much an essential part of it, that the employees are to be regarded as engaged in an occupation "necessary to the production of goods for commerce."

The Court further declared that the employees were within the scope of the act because "they were engaged in occupations 'necessary to the production' of goods for commerce by the tenants." Continuing, the Court said that, "without light and heat and power the tenants could not engage, as they do, in the production of goods for interstate commerce. The maintenance of a safe, habitable building is indispensable to that activity." The normal and spontaneous meaning of the language, by which Congress defined the persons within control of the act, was held to include these employees in view of their relation "to the conceded production of goods for commerce by the tenants."

In a short dissenting opinion, Mr. Justice Roberts said that he was convinced "that Congress never intended by the statute to reach the employees" of the tenants.

Overtime-Pay Provisions Under the Wage and Hour Law

The Supreme Court has decided for the first time two cases interpreting the overtime provisions of the Federal wage and hour law. In one case [3] the Court held that a company could base overtime compensation on an agreed-upon hourly rate in excess of the minimum. In the second case [4] the Court ruled that the overtime provisions of the wage and hour law required the employer to pay one and a half times the regular rate after 40 hours a week and not the minimum wage, which, the company had contended, should be used as the base. In differentiating the two cases the Court declared that in the former case the contract specified "a basic hourly rate of wage and not less than time and a half that rate for every hour for overtime work beyond the maximum hours fixed by the act." In the latter case there was no stated hourly wage and no provision for overtime.

THE BELO CASE

The company in this case operated a newspaper and radio station in Dallas, Tex. Shortly before the wage and hour law became effective in 1938, the company entered into contractual relations with certain of its employees. The contracts were in the form of letters to each employee stating the terms which were agreed to by the employees. The letters briefly explained the wage-and-hour provisions of the new law, and stated that in order for the company to conform to the law the employee hereafter would be paid a basic hourly rate

[3] *Walling* v. *A. H. Belo Corporation* (62 Sup. Ct. 1223).
[4] *Overnight Motor Transportation Co.* v. *Missel* (62 Sup. Ct. 1216).

which was equivalent to the employee's current weekly salary divided by 60 for all hours up to the legal maximum plus at least time and one-half this rate for additional hours. There was also a guaranty that the employee's total weekly earnings should not be less than his former weekly salary. A guaranteed wage of $40 a week was agreed upon and the basic pay arbitrarily fixed at 67 cents a hour for the first 44 hours with time and one-half after that, with a further statutory reductions later to 42 and to 40 hours.

Under this arrangement the company could work any employee up to 54½ hours per week during the first year of the operation of the act without paying such employee more than his former weekly salary. For hours in excess of 54½ a week the employee received, in addition to his guaranteed salary, one and one-half times the basic rate.

The Administrator of the wage and hour law later advised the company that this agreement was contrary to the overtime requirements and that as a result the company owed its employees several thousands of dollars in overtime pay. The Government filed a suit for an injunction against the company. The court of first instance dismissed the action and upon appeal to the Circuit Court of Appeals at New Orleans this decision was affirmed. The United States Supreme Court, in a 5 to 4 decision, held that the formula devised by the company with its employees complied with the provisions of the Wage and Hour Act. The majority opinion written by Mr. Justice Byrnes declared that the plan was "to permit as far as possible the payment of the same total weekly wage after the act as before," and further that "nothing in the act bars an employer from contracting with his employees to pay them the same wages that they received previously so long as the new rate equals or exceeds the minimum required by the act."

It was pointed out by the Court that the decision in the case turned upon the meaning of the words contained in the act requiring the payment of "the regular rate at which he is employed." The Court held that the rate was 67 cents, while the Administrator contended that such an arbitrary rate was meaningless and that the agreement was in effect for a salary of $40 a week and did not take into account the fluctuation in the number of hours worked each week. The Court, however, did not agree with the Administrator that there was an inconsistency between the rate and the guaranty wage. It was further declared by the Court that the guaranty contract carried out the intent of Congress since it specified a basic hourly rate of pay and not less than time and one-half of that rate for overtime.

Mr. Justice Reed delivered a dissenting opinion in which he was joined by three other members of the Court. This opinion agreed with the majority that the validity of the contractual relationship turned on the meaning of the phrase "regular rate at which he is employed." However, the dissent pointed out that in approving the type of contract entered into between the company and its employees the majority opinion gave the phrase an interpretation as "inflexible and artificial as that which it condemns." Mr. Justice Reed thought that, since the overtime hours must be compensated at not less than one and one-half times the regular rate, "regular rate" could not be left without a definition. He declared that an employer and employee may not "capriciously select a certain figure unrelated to the wages paid" and

say that it is the regular rate of employment. Every contract of employment, he pointed out, is assumed by the statute to contain a regular rate and for each contract it is a legal and not a factual conclusion. It was his conclusion, therefore, that the contracts entered into with the Belo employees called for weekly wages for variable hours and not for hourly rates with time and one-half for overtime.

THE MOTOR TRANSPORTATION COMPANY CASE

In this case a former employee of a transportation company sought overtime compensation. He was employed before the effective date of the wage and hour law in 1938 as a rate clerk and performed other incidental duties, none of which were connected with safety of operation. The work for which he was employed involved wide fluctuation in the number of hours of employment. Up until November 1, 1938, his salary amounted to $25.50 per week and thereafter $27.50. From available records an average workweek of 65 hours was shown, with a maximum of 80 hours for each of the 2 weeks during the first year of the operation of the wage and hour law and a maximum of 75 hours in each of the 3 weeks during the second year of operation of the law. The facts show nothing was paid above the weekly wage because these maximum workweeks, computed at the statutory minimum rates with time and one-half for overtime for the period in question, would not require an addition to the weekly wage. The company asserted that it had paid a weekly wage large enough to provide for the minimum wage required at regular time and time and one-half for all overtime work. The company further urged that it was the intent of Congress not to raise salaries generally but only in those cases where wages were substandard.

The Administrator of the wage and hour law contended that the overtime rate of companies should be based on an hourly wage determined by dividing the weekly salary by the number of hours worked regardless of how much the weekly salary exceeded the amount required to be paid by the act. Mr. Justice Reed held that the overtime provision of the law required the company to pay time and one-half the regular rate and not the minimum wage. In arriving at this conclusion, the Court referred to the decision in the court of appeals in which it pointed out that one of the fundamental purposes of the act was to induce work sharing and relieve unemployment by reducing hours of work. The Supreme Court agreed that the purpose of the act was not limited to a scheme to raise substandard wages first by a minimum wage and then by increasing pay for overtime work. This was one effect of the time and one-half provision, but another effect, the Court said, and the intended effect, "was to require extra pay for overtime work by those covered by the act even though their hourly wages exceeded the statutory minimum."

In answering the contention that an employee who is paid a fixed salary for a fluctuating workweek gives the employee a lower "regular rate" the greater number of hours he works in any week, the Court said that, regardless of overtime pay, any employee who is paid a fixed salary earns less per hour the longer he works. The Court also

refused to consider the argument of the employer that the employee's weekly salary impliedly covered payment for both straight time and overtime hours, in these words:

> It is true that the wage paid was sufficiently large to cover both base pay and fifty percent additional for the hours actually worked over the statutory maximum without violating section six. But there was no contractual limit upon the hours which petitioner could have required respondent to work for the agreed wage, had he seen fit to do so, and no provision for additional pay in the event the hours worked required minimum compensation greater than the fixed wage. Implication cannot mend a contract so deficient in complying with the law. This contract differs from the one in *Walling* v. *A. H. Belo Corporation* * * * decided today, where the contract specified an hourly rate and not less than time and a half for overtime, with a guaranty of a fixed weekly sum, and required the employer to pay more than the weekly guaranty where the hours worked at the contract rate exceeded that sum.

The Court, therefore, affirmed the decision of the court of appeals with one Justice (Mr. Justice Roberts) dissenting.

Wage and Hour Statistics

EARNINGS IN THE TEXTILE-MACHINERY INDUSTRY, 1942 [1]

Summary

TO provide basic information on the effects of the transition to a war economy on industrial products, technological processes, occupational patterns, and wage structures, the Bureau of Labor Statistics has undertaken a series of studies of establishments manufacturing machinery and allied products. This report on the textile-machinery industry is the third in the series.

Current production in virtually all of the 47 plants included in this survey showed marked increases in February–March 1942 over 1939–41 levels, and a fourth or more of the sales of 22 of the plants during the month in which they were studied (February or March 1942) consisted of direct or indirect war materials. Among the products manufactured, in addition to textile machinery, were special tools and machines for ordnance plants, shells, marine-engine parts, aircraft parts, and tank equipment.

Pay-roll data from the 47 plants showed a total employment of 8,447 wage earners—a 40-percent increase since August 1939. Average hourly earnings, including penalty overtime, amounted to 74.3 cents during the period February–March 1942; the typical workweek was 49.5 hours. The industry is largely concentrated on the Atlantic seaboard. Earnings in the Middle Atlantic States averaged 13 cents above the level for the New England area and more than 30 cents above the figure for the South.

Less than 3 percent of the 7,073 workers for whom detailed earnings data were compiled were classified in the only two occupations which showed average hourly earnings above $1.00 (floor molders and class A bench assemblers). More than 1,200 male workers were classified in occupations which showed averages below 60 cents per hour.

General Plan of the Survey

This study of earnings in establishments manufacturing textile machinery is the third in a series included in a broad survey begun in March 1942 by the Bureau of Labor Statistics' Division of Wage Analysis. The principal purpose of this survey is to provide information on some of the effects of the present emergency upon the industries producing various types of machinery. It is generally known that the transition to a war economy has resulted

[1] This survey was conducted by the Bureau of Labor Statistics' Division of Wage Analysis. The survey was directed and this report prepared by Harold R. Hosea with the assistance of Odis C. Clark and George E. Votava.

in profound changes in industrial products, technological processes, occupational patterns, and wage structures, but solution of the many economic and social problems involved requires more precise information on their nature.

The present survey was undertaken to supply a factual basis for measures looking toward price control, wage adjustments, the conversion of facilities to the war effort, and the necessary restrictions on production for civilian consumption. In addition to these immediate objectives, the data also throw light on the specific characteristics of occupational and wage structures in the machinery industries as they have been affected by the impact of the present emergency.[2]

Each of the industrial branches to be covered in this series of studies has been defined in terms of the principal products of the various plants during the year 1939. Thus, the textile-machinery industry is treated as consisting of the plants which were classified in that branch by the 1939 Census of Manufactures, the latest census available. Important changes in types are to be expected, especially because the war program has accentuated the shifts in production that would be expected over a 3-year period.

In many branches of the machinery industry, the changes in product have already been very marked. A group of plants classified as constituting an industrial branch in 1939 may be far from homogeneous at the present time. It is, nevertheless, useful to begin with the 1939 classification as a starting point. The data on changes in types of product within an industry are, in themselves, highly significant. Where recent changes in product have had a marked effect on the wage structure, an attempt will be made to reclassify the establishments in each industry on the basis of their principal products at the present time.

The data for the present survey were collected by trained field representatives of the Bureau who visited the plants and analyzed pay rolls and other pertinent records. The detailed wage data on individual employees are limited to day-shift workers in certain occupational groups selected for their importance either numerically or because they are key jobs. In general, however, occupational earnings rates were compiled for approximately 85 percent of the wage earners. The earnings data shown in this report are based on a representative pay-roll period during February–March 1942.

Scope of the Survey

According to the latest Census of Manufactures there were 300 plants engaged primarily in the manufacture of textile machinery in 1939; as a group these plants employed an average of 21,904 wage earners. Of the total of 300 establishments, 81 employed 5 workers or fewer and were excluded from this survey. The 47 establishments covered by this study thus constitute slightly more than a fifth (21 percent) of the industry's 1939 total of plants employing more than 5 workers each. The plants studied were selected so far as possible to be representative of the industry as a whole with respect to location, size in terms of wage earners, and corporate affiliation. In August 1939, the 147 plants surveyed employed a total of 5,997 wage earners, or

[2] Brief reports on each of the industries studied are released as the material becomes available. Series I, No. 1, on agricultural machinery and Series I, No. 2, on mining machinery and equipment have been issued; others are in preparation. Copies are available on request to the Bureau of Labor Statistics.

slightly more than a fourth of the industry total at that time as reported by the Census of Manufactures.[3]

The textile-machinery industry is confined largely to the Atlantic Seaboard States. Of the plants studied, 20 are located in the 3 States of Pennsylvania, New York, and New Jersey, another 20 are in New England, and 6 are located in the South. The 1 remaining establishment is in Illinois. This distribution of plants does not, in general, differ greatly from that shown by the Census of Manufactures; the geographic distribution of the wage earners studied is somewhat more representative than that of the establishments because of the preponderance of small establishments in certain areas, notably the South.

Characteristics of the Industry

Slightly less than a third of the workers studied were employed by the 21 plants located in the Middle Atlantic States [4] and nearly three-fifths were working in New England establishments, while the 6 southern plants accounted for little more than 7 percent of the total.

The plants classified by the Census in the textile-machinery industry include those "engaged wholly or chiefly in the manufacture of machinery for use in the textile industries." The role of the various companies in this industry in the war program has assumed substantial proportions, but its nature varies considerably. Sales made by virtually all plants during the early months of 1942 indicate marked increases over the 1939–41 levels, and a fourth or more of the sales of 22 of the plants during the month in which they were studied consisted of materials for direct or indirect war use. Fourteen of these companies reported at least 75 percent of their current sales in this category, and 5 of these same firms classified their entire output as directly connected with the war effort.

It should be noted in this connection that in this industry, as well as in many others, certain of the peacetime products of manufacturing plants can be classified as war materials without implying that there has been any drastic change in the nature of the product itself. Certain types of textile machinery, such as those used for manufacturing parachute and uniform cloth, are in this category because of their importance in various phases of the war program. Nevertheless, most of the 22 companies referred to above are manufacturing actual war materials as well as textile machinery. Among the products manufactured are special tools and machines for ordnance plants, shells, marine-engine parts, aircraft parts, and tank equipment. It is clear that drastic technological shifts were made in at least 3 plants and important, though perhaps less marked, changes were necessary in other cases.

The textile industry was involved in the defense program somewhat earlier than were some of the other machinery branches. Either by diversion of their regular product or by the manufacture of actual war supplies, 23 of the 47 plants surveyed reported sales of defense or war materials during 1941 and 5 as early as 1940. Nine plants classified half or more of their 1941 sales as defense or war materials.

[3] In combining the data for the individual plants, the statistics for 1 large company were used with reduced weight in order to avoid overrepresentation of large plants. The total employment of the plants studied was actually about 7,300 in August 1939.

[4] Including the 1 plant located in Illinois.

THE LABOR FORCE

Almost a third (30.5 percent) of the 7,073 employees for whom detailed earnings data were collected were classified as skilled. Semiskilled workers made up 45.1 percent of the total, with the remaining 24.4 percent classified as unskilled. The wage earners for whom skill classification was ascertained constitute nearly 85 percent of the total employees in the plants studied. It is unlikely that inclusion of the remaining workers would greatly affect this estimated skill distribution.

White males constituted more than 95 percent of the labor force in the plants surveyed. Sixteen plants reported a total of 376 women employed principally as inspectors, assemblers, or operators of light machines. The proportion of women employed was highest in the South, where women comprised 9 percent of all employees in the 6 plants studied; all of them, however, were working in 3 plants. A total of 286 women were employed in 8 of the 20 New England plants and constituted about 4.5 percent of the labor force in that region. Less than 1 percent of the employees in the plants located in the Middle Atlantic States were women and all were employed by 5 of the 21 plants studied.

About 5 percent of the workers in the 6 southern plants were Negroes, and all but 1 plant reported Negro workers. Less than 1 percent of the workers in northern plants were Negroes and all were concentrated in 3 of the 41 plants. The principal occupations of Negro workers were laborers, janitors, molders' helpers, and a few miscellaneous semiskilled jobs.

Three of the 47 plants studied were operating under agreements with nationally affiliated unions, and all of these are in the New England area. In addition, there were employee-representation plans in effect in 3 other plants. Two of the 3 union plants and all 3 plants with employee-representation plans employed 100 workers or more.

Because of the technological similarity between the manufacture of textile machinery and of many of the direct war materials (e. g., special ordnance-manufacturing machinery) produced by these companies, such changes in processes and division of labor as may have occurred seem not to have affected the occupational structure to any marked degree.

METHOD OF WAGE PAYMENT

Over three-fifths (63 percent) of the 7,073 workers for whom detailed earnings data were compiled were paid on a straight time basis. The remaining 37 percent were paid on the basis of piece work or production-bonus systems.

Incentive methods of wage payment were, however, in effect in only 13 of the 47 establishments studied. Nine of the 13 plants were in the New England area and the remaining 4 were located in the Middle Atlantic States. All of the larger plants (those employing 250 or more workers) used some form of incentive method of wage payment, and nearly 50 percent of the employees in these plants were paid on the basis of a piece or bonus system. At the other extreme, only 2 percent of the workers in plants employing 50 or fewer workers were paid incentive rates, and they were distributed among 3 of the 23 plants in this category. In the 13 plants using incentive systems of wage payment, 37 percent of the workers were paid on this basis.

All of the 47 establishments scheduled in this survey paid time and one-half for work above 40 hours per week and 14 applied this penalty rate to any work above 8 hours per day. Five plants paid double time for all Sunday work.

Twenty-eight of the plants studied were operating but 1 shift; 13 reported 2 shifts and 6 were working 3 shifts. Five of the 2-shift plants paid no premium for evening work, 1 paid an additional 2.5 cents per hour and granted a half-hour lunch period at full pay, 1 paid an additional 3 cents per hour, and in 3 the premium was 5 cents per hour. In the remaining 3 plants, 10 percent was added to the base rates of evening-shift workers.

One of the 6 plants operating 3 shifts paid no premium for work on either late shift. Another paid no differential for evening work but added 10 percent to the base rates for night-shift workers. In 2 more cases the premiums for evening and night work were the same—the premium was 5 cents per hour in 1 case and 10 cents in the other. The 2 remaining plants in this group paid an extra 10 percent to workers on both late shifts, but employees on the third shift in 1 of these plants also received a 25-minute lunch period on company time.

Employment, Hours, and Earnings

TREND FROM 1939 TO 1942

The effect of the war is apparent in the increase of more than 40 percent in employment in the plants studied between August 1939 and February–March 1942. During the same period, the average number of workers per plant rose from 156 to 205 (table 1).

TABLE 1.—*Employment, Average Hourly Earnings, and Average Weekly Hours of Workers in 47 Textile-Machinery Plants in Selected Periods, 1939–42*

Year and month	Total wage earners [1]	Average wage earners per plant	Average hourly earnings [2]	Estimated average hourly earnings exclusive of penalty overtime earnings	Average weekly hours
August 1939	5,997	156	$0.621	$0.607	39.0
April 1940	6,729	167	.601	.583	40.3
August 1940	5,909	148	.615	.598	40.0
February 1941	7,036	175	.642	.596	45.6
August 1941	8,111	200	.687	.640	45.2
February–March 1942 [3]	8,447	205	.743	.669	49.5

[1] Data for 1 large plant weighted in order properly to stratify the sample.
[2] Averages for earlier periods exclude data on a few small plants for which the information was not available; the effect of these omissions is negligible.
[3] Data for 1 plant based on a pay-roll period in April.

Average hourly earnings for all workers employed in these plants rose from 62.1 cents per hour in August 1939 to 74.3 cents during the period of this survey.[5]

[5] These averages are somewhat lower than those shown in the Bureau's monthly trend series as a result of minor differences in the characteristics and distribution of the plants included in the samples upon which the two averages are based. The trend of earnings as indicated in table 1, however, corresponds closely to that shown in the monthly reports.

The workweek in the textile-machinery industry has been relatively long throughout the period covered by these data. Even the weekly average of 39.0 hours shown for August 1939 includes overtime for some workers, and it is estimated that exclusion of penalty payments for such work would reduce the average hourly earnings rate by 1.4 cents to 60.7 cents per hour. The average workweek of almost 50 hours for the latest period involves relatively large amounts of penalty overtime earnings. Deduction of such amounts is estimated to result in a net hourly earnings rate of 66.9 cents as compared with the 74.3-cent gross rate.

REGIONAL DIFFERENCES

The 2,775 workers in plants located in the Middle Atlantic States received an average of 84.4 cents per hour (including penalty overtime payments) during the period February–March 1942. This figure is 13 cents above the corresponding average for the 5,048 New England workers despite the fact that the New England plants are nearly 50 percent larger on the average. This regional comparison is not affected materially by the amounts of penalty overtime earnings involved. The 624 workers in the southern plants, which were scarcely half the average size of the entire group of plants studied, earned an average of 53.8 cents per hour (table 2). The difference in earnings levels between North and South is exaggerated somewhat by differences in the length of the workweeks among plants in the two regions. Weekly hours in southern plants were about 6 below the corresponding figure for northern plants. This regional difference appears also to be inflated by some variations in the types of product. The manufacture of complete machinery is more important in the North, while many of the southern establishments are engaged principally in making parts only. Nevertheless, the North-South differential in this industry is believed to be substantial.

TABLE 2.—*Distribution of Textile-Machinery Plants by Plant Average Hourly Earnings and Region, February–March 1942*

Plant average hourly earnings	All States	Middle Atlantic States [1]	New England States	Southern States [2]
40.0 and under 50.0 cents	4	1		3
50.0 and under 60.0 cents	10	3	7	
60.0 and under 70.0 cents	8	2	3	3
70.0 and under 80.0 cents	11	5	6	
80.0 and under 90.0 cents	10	6	4	
90.0 cents and over	4	4		
Total	47	21	20	6
Number of workers	8,447	2,775	5,048	624
Average number of workers per plant	205	188	252	104
Average hourly earnings	$0.743	$0.844	$0.714	$0.538

[1] Includes 1 plant in Illinois.
[2] North Carolina, South Carolina, and Kentucky.

Plant average hourly earnings in 14 of the establishments surveyed amounted to 80 cents or more per hour. Ten of these plants are located in the Middle Atlantic area and 4 in New England; none were in the South. All 4 of the plants which showed average earnings of 90 cents an hour and above were in the Middle Atlantic region. Conversely, 3 of the 4 plants with average hourly earnings below 50

cents were in the South, and no southern plant showed an average as high as 70 cents per hour.

EARNINGS AND SIZE OF PLANT

The data on this industry are not conclusive with respect to the relationship between size of plant and earnings levels. The regional differentials, as well as marked differences in the length of the workweeks among the several plants, are so large as to obscure any existing variations in earnings levels on the basis of size of plant.

EARNINGS AND WAR PRODUCTION

Earnings seem not to have been greatly affected by the shift to war production in these textile-machinery plants. Those that were classified as selling 25 percent or more of defense or war materials showed no significant difference in wages in comparison with the others studied. Average earnings in establishments producing substantial amounts of war materials were somewhat higher in the Middle Atlantic region, but the difference is no greater than that which would result from the larger amounts of penalty overtime earnings occasioned by the comparatively longer workweek in these plants.

OCCUPATIONAL DIFFERENCES IN AVERAGE HOURLY EARNINGS

Less than 3 percent of the 7,073 workers for whom detailed earnings data were compiled were classified in the 2 occupational groups which showed average earnings above $1.00 per hour. These occupations were floor molders who averaged $1.053 and class A bench assemblers at $1.131.

In addition to the 542 apprentices and learners, 20 occupational groups, in which over 1,200 male workers were classified, showed average earnings below 60 cents per hour. Most important numerically were the 212 laborers with an average of 56.2 cents, 153 class C drill-press operators at 55.7 cents, and 117 watchmen at 54.2 cents. The lowest paid occupational group were the 22 molders' helpers whose average hourly earnings were 46.8 cents.

The numbers of workers classified in the various occupational groups are insufficient in most cases to warrant regional comparisons. The southern rates are below the northern levels in virtually every case, although the extent of the differences vary considerably. The southern rate for class B bench assemblers, for example, is more than 24 cents below that in northern plants. On the other hand, the regional differences in the case of tool makers and stock clerks amount to 1 cent or less per hour, and for one group—the all-around machine operators—the rates were identical. In both cases, however, the numbers of workers are so small that the comparisons cannot be regarded as highly significant (table 3).

It is not possible to present detailed information on the earnings of women because their numbers are comparatively small. Of the few women for whom averages can be computed, the class B bench assemblers are the highest paid, with an average of 72.7 cents per hour. At the other extreme, the 11 class C punch-press operators earned an average of 41.1 cents per hour; the only lower rate was that for the 25 learners (40.7 cents).

TABLE 3.—*Average Hourly Earnings of Day-Shift Workers in Selected Occupations in Textile-Machinery Plants, February–March 1942*

Occupation and class	United States		North		South	
	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings
Males						
Apprentices	203	$0.440	203	$0.440		
Assemblers, bench, class A	158	1.131	148	1.157	10	$0.735
Assemblers, bench, class B	149	.733	129	.766	20	.520
Assemblers, bench, class C	221	.682	216	.687	5	.472
Assemblers, floor, class A	127	.924	127	.924		
Assemblers, floor, class B	100	.772	99	.773	1	(1)
Assemblers, floor, class C	65	.669	65	.669		
Balancing-machine operators	4	(1)	4	(1)		
Blacksmiths	24	.796	24	.796		
Boring-mill operators, class A	42	.936	41	.942	1	(1)
Boring-mill operators, class B	32	.657	32	.657		
Boring-mill operators, class C	4	(1)	4	(1)		
Broaching-machine operators	12	.718	12	.718		
Buffers	88	.642	85	.643	3	(1)
Bulldozer operators	2	(1)	2	(1)		
Burrers, class B	32	.581	32	.581		
Burrers, class C	47	.469	47	.469		
Carpenters, class A	19	.853	19	.853		
Carpenters, class B	30	.735	28	.737	2	(1)
Carpenters, class C	56	.615	56	.615		
Carpenters, flask	5	.813	5	.813		
Casting cleaners	149	.602	141	.617	8	(1)
Chippers, class B	16	.600	16	.600		
Chippers, class C	30	.523	30	.523		
Coremakers	24	.902	23	.905	1	(1)
Coremakers' helpers	8	.576	8	.576		
Core pasters	7	(1)	7	(1)		
Crane followers	1	(1)	1	(1)		
Crane operators	14	.678	14	.678		
Craters	7	.665	7	.665		
Cupola tenders	6	.648	6	.648		
Cupola tenders' helpers	6	.625	6	.625		
Die setters	6	.709	6	.709		
Drill-press operators, class A	92	.793	91	.794	1	(1)
Drill-press operators, class B	62	.691	60	.694	2	(1)
Drill-press operators, class C	153	.557	141	.571	12	.393
Drop-hammer operators	3	(1)	3	(1)		
Electricians	31	.809	31	.809		
Elevator operators	10	.553	10	.553		
Firemen, stationary boiler	9	.610	8	.649	1	(1)
Flask and pattern carriers	1	(1)	1	(1)		
Foremen, working, class A	116	.990	109	1.001	7	.829
Foremen, working, class B	76	.863	71	.869	5	.786
Foremen, working, class C	42	.717	38	.719	4	(1)
Gear cutters, class A	10	.974	9	.988	1	(1)
Gear cutters, class B	27	.602	26	.606	1	(1)
Gear cutters, class C	1	(1)	1	(1)		
Gear finishers	14	(1)	14	(1)		
Grinding-machine operators, class A	66	.861	62	.872	4	(1)
Grinding-machine operators, class B	93	.627	79	.654	14	.474
Grinding-machine operators, class C	3	(1)	3	(1)		
Heat treaters, class A	8	.863	8	.863		
Heat treaters, class B	17	.682	13	.724	4	.548
Helpers, journeymen's	101	.534	97	.538	4	.445
Helpers, machine operators'	106	.547	96	.565	10	.379
Inspectors, class A	45	.821	44	.825	1	(1)
Inspectors, class B	53	.716	51	.725	2	(1)
Inspectors, class C	37	.523	33	.534	4	(1)
Janitors	96	.566	92	.572	4	(1)
Job setters	56	.762	56	.762		
Laborers	212	.562	201	.573	11	.357
Laborers, foundry	8	(1)	8	(1)		
Ladle liners	19	.617	19	.617		
Lathe operators, engine, class A	142	.888	139	.892	3	(1)
Lathe operators, engine, class B	167	.677	161	.681	6	.580
Lathe operators, engine, class C	49	.626	45	.641	4	(1)
Lathe operators, turret, class A	91	.900	87	.905	4	(1)
Lathe operators, turret, class B	128	.635	118	.641	10	.555
Lathe operators, turret, class C	12	.682	12	.682		
Lay-out men	10	.841	10	.841		
Learners, journeymen	76	.480	76	.480		
Learners, machine operators and other	263	.444	243	.449	20	.395

See footnote at end of table.

TABLE 3.—*Average Hourly Earnings of Day-Shift Workers in Selected Occupations in Textile-Machinery Plants, February–March 1942*—Continued

Occupation and class	United States		North		South	
	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings
Males—Continued						
Machine operators, all-around	36	$0.763	14	$0.763	22	$0.763
Machinists	130	.907	117	.915	13	.838
Metal-saw operators	18	.741	18	.741		
Milling-machine operators, class A	75	.883	73	.889	2	(1)
Milling-machine operators, class B	192	.688	191	.690	1	(1)
Milling-machine operators, class C	5	.666	5	.666		
Millwrights	45	.777	39	.785	6	.728
Molders, bench	56	.871	56	.871		
Molders, floor	50	1.053	41	1.094	9	(1)
Molders' helpers	22	.468	12	.556	10	(1)
Molders, machine, class A	9	(1)	9	(1)		
Molders, machine, class B	70	.887	70	.887		
Packers	35	.667	33	.682	2	(1)
Painters, brush	76	.626	75	.627	1	(1)
Painters, dip	33	.590	33	.590		
Painters, spray	30	.698	30	.698		
Patternmakers, metal	34	.795	34	.795		
Patternmakers, wood	34	.910	33	.907	1	(1)
Pipe fitters	29	.766	29	.766		
Planer operators	50	.918	50	.918		
Platers	3	(1)	3	(1)		
Pourers	92	(1)	92	(1)		
Power-shear operators	7	.746	7	.746		
Punch-press operators, class A	5	(1)	5	(1)		
Punch-press operators, class B	60	.613	57	.621	3	(1)
Punch-press operators, class C	29	.505	29	.505		
Repairmen, machine tool	83	.752	82	.753	1	(1)
Repairmen, product, class A	13	.827	13	.827		
Repairmen, product, class B	7	.707	6	(1)	1	(1)
Repairmen, product, class C	10	.539	10	.539		
Sandblasters	8	.808	8	.808		
Sand mixers, band	18	(1)	18	(1)		
Sand mixers, machine	4	(1)	4	(1)		
Screw-machine operators, class A	18	.855	16	.886	2	(1)
Screw-machine operators, class B	23	.674	22	.680	1	(1)
Screw-machine operators, class C	35	.596	34	.603	1	(1)
Shake-out men	7	(1)	7	(1)		
Shaper operators	10	.905	10	.905		
Sheet-metal workers, class A	40	.922	40	.922		
Sheet-metal workers, class B	43	.747	43	.747		
Solderers, class B	2	(1)	1	(1)	1	(1)
Stock clerks	251	.602	241	.603	10	.593
Straighteners	48	.796	48	.796		
Testers, class A	3	(1)	1	(1)	2	(1)
Testers, class B	2	(1)	2	(1)		
Testers, class C	4	(1)	4	(1)		
Thread-milling machine operators	10	.721	10	.721		
Time clerks	91	.566	90	.567	1	(1)
Tool and die makers	124	.987	118	.987	6	.983
Tool-grinder operators	48	.695	48	.695		
Truck drivers	47	.619	44	.633	3	(1)
Truckers, hand	86	.541	86	.541		
Truckers, power, inside	11	.639	11	.639		
Tumbler operators	18	.541	18	.541		
Watchmen	117	.542	108	.552	9	.419
Welders, hand, class A	35	.943	35	.943		
Welders, hand, class B	19	.651	19	.651		
Welders, machine	12	.750	12	.750		
Woodworkers	93	.634	63	.736	30	(1)
Females						
Assemblers, bench, class A	5	(1)			5	(1)
Assemblers, bench, class B	7	.727	5	(1)	2	(1)
Assemblers, bench, class C	60	.428	57	.427	3	(1)
Buffers	5	.512	5	.512		
Burrers, class C	29	(1)	29	(1)		
Coremakers, class B	7	(1)	7	(1)		
Drill-press operators	18	(1)	18	(1)		
Gear cutters	3	(1)	3	(1)		
Gear finishers	4	(1)	4	(1)		

See footnote at end of table.

TABLE 3.—*Average Hourly Earnings of Day-Shift Workers in Selected Occupations in Textile-Machinery Plants, February–March 1942*—Continued

Occupation and class	United States		North		South	
	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings
Females—Continued						
Grinding-machine operators, class B	3	(1)	3	(1)		
Inspectors, class B	12	$0.717	10	$0.740	2	(1)
Inspectors, class C	28	.456	16	.520	12	$0.370
Janitresses	2	(1)	2	(1)		
Lathe operators, engine, class C	2	(1)	2	(1)		
Learners	25	.407	23	.412	2	(1)
Milling-machine operators, class B	16	(1)	16	(1)		
Packers	9	.496	9	.496		
Painters, brush	10	.437	10	.437		
Punch-press operators, class B	8	(1)			8	(1)
Punch-press operators, class C	11	.411	9	.413	2	(1)
Screw-machine operators, class C	1	(1)	1	(1)		
Solderers, class C	11	(1)	11	(1)		
Stock clerks	16	(1)	16	(1)		
Straighteners	1	(1)	1	(1)		
Thread-milling machine operators	1	(1)	1	(1)		
Time clerks	13	(1)	13	(1)		
Tool grinder operators	2	(1)	2	(1)		

[1] Number of plants and/or workers too small to justify computation of an average; data on numbers of workers are included in such cases to provide additional information on occupational distribution.

EARNINGS IN THE CONSTRUCTION-MACHINERY INDUSTRY [1]

Summary

THIS survey of earnings in plants manufacturing construction machinery is the fourth in the series undertaken by the Bureau of Labor Statistics for the purpose of providing information on the effects of the war on various branches of the machinery industry.

The 41 plants included in this survey, which constitute about one-fourth of the total in the industry, reflect the impact of the war economy. During 1941 the output of 14 plants consisted of products with high priority ratings either on the basis of war contracts or for essential civilian use. During the early part of 1942, 5 plants reported their entire output as closely connected with the war effort; conversion of at least a portion of the facilities of these plants was involved.

Employment in these 41 plants, as a group, increased from 5,793 in August 1939 to 11,359 in February-April 1942. During the same period, average hourly earnings, including penalty overtime payments, rose from 69.2 to 90.5 cents. A steady increase in the length of the workweek is responsible for part of this increase in hourly earnings; it is estimated that elimination of premium payments for overtime work would reduce the average hourly earnings figure for the latter period from 90.5 to 81.2 cents. On the basis of size of plant, hourly earnings varied from 75.3 cents in plants with fewer than 50 workers to 93.2 cents in those with 500 or more employees.

A total of 1,250 workers, or nearly a fifth of those for whom detailed earnings data were compiled, were classified in the 15 occupational groups which showed average earnings of $1.00 or more per hour. With the exception of apprentices, only 3 occupational groups of men, in which 150 workers were classified, showed hourly averages below 60 cents. The number of women employed in this industry is negligible.

Scope of Survey [2]

According to the latest Census of Manufactures there were 199 plants engaged primarily in the manufacture of construction and similar machinery; these plants as a group employed an average of 17,259 wage earners during 1939. Of the total of 199 plants, 29 which were employing 5 workers or less, were excluded from this survey. The establishments studied include 24 percent of the remaining 170 plants reported by the Census. This sample of plants was selected as far as possible to be representative of the industry as a whole with respect to location, size in terms of number of wage earners, and corporate affiliation. In August 1939, the 41 plants surveyed employed a total of 5,793 wage earners.

[1] This survey was conducted by the Bureau of Labor Statistics' Division of Wage Analysis. The study was directed and this report prepared by Harold R. Hosea with the assistance of Odis C. Clark and George E. Votava.

[2] The general purpose and methodology of this survey are similar to that described in the article on earnings in the textile-machinery industry appearing elsewhere in this issue.

Characteristics of the Industry

TYPES OF PRODUCT

The establishments classified by the Census in the construction-machinery industry include those "primarily engaged in the manufacture of heavy machinery used by the construction industries for portable or fixed plant operation in dredging (including mining dredges), excavating, and road building. Road-maintenance machinery (such as sweepers and snow plows) are also included in this classification." Well-drilling and mining machinery are not included in this industry.

The role of individual establishments in the war effort, as pointed out in previous reports in this series, may take the form of diversion of their usual products to new channels (i.e., a change in customers), or of a shift to the production of military and naval equipment. In the latter case, some conversion of plant facilities is likely to occur.

During 1939 and 1940, none of the 41 plants studied reported diversion of its regular products to the defense program and none was producing direct war materials. In 1941, the production of 14 plants reflected the transition to a war economy in one fashion or another. Of the total, 9 were maintaining or increasing their output of regular products under high priority ratings either on the basis of war contracts or for essential civilian use. Five of these 9 reported half or more of their 1941 dollar sales in these categories. A total of 5 plants produced some direct military equipment during 1941, but in all cases such material constituted less than 50 percent of total sales. Conversion of a portion of the facilities and equipment in these 5 plants was, of course, involved.

The number of plants engaged in direct or indirect war production during the period of the present survey was the same as that reported for 1941 in each case. There was, however, a marked increase in the proportions of sales based on war contracts or high-priority orders; 5 of the 14 plants reported their entire output for March or April 1942 in this category.

THE LABOR SUPPLY

Distributions of workers by skill class are available only for the 7,087 workers for whom detailed earnings data were compiled. Of this total, about 34 percent may be regarded as skilled workers, 41 percent as semiskilled, and the remaining 25 percent as unskilled. It is unlikely that inclusion of the remaining workers would greatly affect this estimate of distribution by skill class.

The employment of women in this industry is negligible, as might be expected. One of the 41 plants studied employed 39 women who constituted about 2 percent of the workers in that plant. Another plant employed one woman and the remaining 39 employed none. All woman workers were employed as winders or janitresses.

Negroes constituted about one-half of 1 percent of the total employment of the 41 plants in the period February–April 1942. All of the 58 Negro workers employed were found in 6 plants, of which 4 were in the North. They were employed principally as porters and janitors; a few other occupations were represented, among which are lathe hands (semiskilled), casting cleaners, molders' helpers, and shake-out men.

Nineteen of the 41 plants were operating under agreements with unions during the period of this survey. Fourteen of the 19 agreements were with nationally affiliated unions. Agreements were found much more frequently in the larger plants than in the smaller ones.

METHODS OF WAGE PAYMENT

Slightly less than a third (30 percent) of the workers included in this survey were paid on the basis of an incentive-wage system, i. e., by a system involving piece rates or bonuses. Only 9 plants made use of these systems, but all of them were relatively large plants. Less than half (45 percent) of the wage earners in these 9 establishments were paid straight-time rates. Among the plants with fewer than 250 workers each, less than 1 percent of the employees, on the average, were paid under incentive systems.

Payment at the rate of one and one-half times the regular rate was made for work in excess of 40 hours per week by all the plants studied, and 27 also applied this rate to all work above 8 hours per day. Nineteen plants paid time and one-half for all Saturday work and 2 paid double time for such work. Sunday work was paid for at double rates in 19 plants. Double time applied to all work above 10 hours per day in 1 plant and above 11 hours in another. Double time was also the most frequent rate for holiday work.

Twelve of the 41 plants studied were operating but 1 shift, 19 were working 2 shifts, 9 reported 3 shifts, and for 1 no data were available. Five of the plants operating 2 shifts paid no premium for evening work, 1 added 3 cents to the base hourly rate, 6 added 5 cents, and 2 added 10 cents. In 4 cases the premium for evening work was on a percentage basis; 3 added 5 percent and in 1 plant the differential was 10 percent. One 2-shift plant granted 13.5 hours' pay for 11 hours of work.

Of the 9 plants operating 3 shifts, 1 paid no differential for either late shift. Three more paid no premium for evening work, but night workers received a differential; in 2 cases they were paid for 1 and 1½ more hours than they actually put in and in the other case the base rate was increased by 10 percent. In 2 of the 9 plants, the premiums were the same for both late shifts—the amounts were 3 and 5 cents per hour. Two more plants, which paid 5 cents per hour additional for evening work, reported differentials of 8 and 10 cents per hour, respectively, for night work. The 1 remaining plant in this group paid a premium of 5 percent for evening and 10 percent for night work.

Employment, Hours, and Hourly Earnings, 1932–42

Employment data for the 41 plants included in this survey show striking increases during each of the periods surveyed since August 1939. Between that date and the first quarter of 1942, the number of wage earners in these establishments rose from 5,793 to 11,359 or about 96 percent. The rise of almost a third during the last 12 months is, at least in part, evidence of the role of this industry in the war effort (table 1).

Average hourly earnings in these 41 plants as a group amounted to 69.2 cents in August 1939. The average workweek of 38.4 hours at that time was not sufficiently long to involve large amounts of penalty

overtime earnings; elimination of such payments would tend to reduce the average by little more than 1 cent per hour. During the early months of 1942, however, the average working time in these plants as a group had risen to an even 50 hours per week, and penalty overtime payments assumed increased importance. It is estimated that the average hourly earnings rate of 90.5 cents per hour would be lowered by more than 9 cents by the elimination of payment for overtime at penalty rates (table 1).

TABLE 1.—*Employment, Average Hourly Earnings, and Average Weekly Hours of Work in 41 Construction-Machinery Plants for Selected Periods, 1939–42*

Year and month	Total workers	Average workers per plant	Average hourly earnings	Estimated average hourly earnings exclusive of penalty overtime earnings	Average weekly hours
	All States				
August 1939	5,793	141	$0.692	$0.679	38.4
April 1940	6,678	163	.722	.699	40.7
August 1940	7,217	176	.727	.700	41.6
February 1941	8,670	211	.795	.735	46.1
August 1941	10,316	252	.834	.760	48.0
February–April 1942	11,359	277	.905	.812	50.0
	North Central States				
August 1939	4,907	204	$0.687	$0.675	38.1
April 1940	5,629	235	.719	.697	40.6
August 1940	6,225	259	.721	.693	41.7
February 1941	7,507	313	.790	.728	46.6
August 1941	8,715	363	.831	.757	48.0
February–April 1942	9,702	404	.903	.808	50.4
	Other States				
August 1939	886	52	$0.718	$0.699	39.9
April 1940	1,049	62	.738	.712	41.3
August 1940	992	58	.763	.737	41.1
February 1941	1,163	68	.829	.791	42.6
August 1941	1,601	94	.850	.773	48.2
February–April 1942	1,657	97	.918	.839	47.5

Hourly Earnings and Weekly Hours of Work, February–April 1942

PLANT AVERAGES

No marked regional differences in plant average hourly earnings are apparent. Of the 41 plants studied, 24 are located in the North Central States, and are within the same broad wage area. Most of the remainder are located in the Middle Atlantic or Pacific Coast States, and do not constitute a sufficiently homogeneous group for purposes of regional comparisons. This industry is not important in the South. Consequently, only 4 southern plants were included in the survey. The North-South wage differences which are found in many industries are not apparent in this case. However, it must be noted that the number of plants in the South is hardly large enough to warrant broad generalizations as to regional wage differences. Average hourly earnings in the 2 groups of States varied by only 1.5 cents, a difference that cannot be characterized as significant (table 2).

The regional wage difference would be greater, however, if penalty overtime earnings were eliminated, since the average workweek in the North Central area was longer by about 3 hours.

TABLE 2.—*Average Weekly Hours and Average Hourly Earnings of Workers in Construction Machinery, by Size of Plant and Region, February–April 1942*

Plant size in terms of wage earners	Number of plants	Number of workers	Average weekly hours	Average hourly earnings [1]
	All States			
All plants	41	11,359	50.0	$0.905
Under 50	14	289	47.6	.753
50 and under 250	14	1,610	48.9	.857
250 and under 500	7	2,173	50.8	.871
500 and over	6	7,287	50.1	.932
	North Central States			
All plants	24	9,702	50.4	$0.903
Under 50	6	150	47.9	.766
50 and under 250	8	1,030	49.8	.809
250 and under 500	4	1,235	53.9	.826
500 and over	6	7,287	50.1	.932
	Other States			
All plants	17	1,657	47.5	$0.918
Under 50	8	139	47.2	.739
50 and under 250	6	580	47.3	.943
250 and under 500	3	938	47.6	.929
500 and over				

[1] Averages include earnings on account of penalty overtime and shift differentials.

Almost two-thirds (64 percent) of the workers studied were employed in the 6 largest plants. These earned an average of 93.2 cents per hour during a representative pay-roll period in February, March, or April of this year. All of these plants are located in the North Central region. Average hourly earnings in the 14 plants employing fewer than 50 workers were substantially lower—75.3 cents—but these establishments accounted for less than 3 percent of the wage earners studied. In general, plant average hourly earnings varied directly with size of plant in terms of employees. These comparisons are not greatly affected by variations in the length of the workweek. For plants employing between 50 and 500 workers, average earnings were somewhat lower in the North Central region than they were elsewhere (table 2). Seven of the 41 plants studied showed average hourly earnings of $1.00 or more.

OCCUPATIONAL DIFFERENCES IN AVERAGE HOURLY EARNINGS

Average hourly earnings (exclusive of penalty overtime payments) amounted to $1.00 or more in 15 of the occupational groups into which the 7,044 male workers studied were classified. These 15 occupations include more than 1,250 workers or nearly a fifth of the total. Most important numerically were the 281 class A floor assemblers with an average of $1.001, the 229 class A (hand) welders at $1.006, and 163

class A turret-lathe operators with an hourly average of $1.033. With the exception of working foremen, patternmakers ($1.097) and tool and die makers ($1.096) were the highest-paid occupational groups containing substantial numbers of workers (table 3).

Only 3 occupational groups of men (except for apprentices) showed hourly averages below 60 cents; these groups included but 150 workers employed as coremakers' helpers, foundry laborers, and watchmen.

As has already been pointed out, the employment of women in this industry is negligible. The 35 class B winders and the 8 janitresses constitute the entire group of female factory workers in the plants surveyed. Because of the absence of any marked regional differentials as outlined above, occupational earnings rates have been tabulated only for the entire 41 plants as a group.

TABLE 3.—*Average Hourly Earnings of Day-Shift Workers in Selected Occupations in Construction-Machinery Plants, February–April 1942*

Occupation and class	Number of workers	Average hourly earnings	Occupation and class	Number of workers	Average hourly earnings
Males			*Males*—Continued		
All male workers	7,044	$0.827	Grinding-machine operators, class A	26	$0.995
Acetylene-burner operators	71	.875	Grinding-machine operators, class B	45	.814
Apprentices, first year	59	.441	Hammersmiths	5	.861
Apprentices, second year	54	.495	Heat treaters, class A	10	.949
Apprentices, third year	21	.584	Heat treaters, class B	10	.753
Apprentices, fourth year	27	.764	Helpers, journeymen's	197	.735
Assemblers, bench, class A	71	.923	Helpers, machine operators	178	.710
Assemblers, bench, class B	125	.829	Inspectors, class A	52	.984
Assemblers, bench, class C	103	.643	Inspectors, class B	29	.853
Assemblers, floor, class A	281	1.001	Inspectors, class C	30	.739
Assemblers, floor, class B	431	.747	Janitors	109	.617
Assemblers, floor, class C	231	.684	Job setters	2	(1)
Blacksmiths	44	.995	Laborers	390	.615
Boring-mill operators, class A	93	1.085	Laborers, foundry	63	.524
Boring-mill operators, class B	36	.885	Lay-out men, class A	84	.991
Broaching-machine operators	21	.938	Lay-out men, class B	15	.815
Bulldozer operators	11	.938	Lathe operators, engine, class A	147	.995
Burrers, class B	22	.814	Lathe operators, engine, class B	110	.781
Burrers, class C	19	.721	Lathe operators, turret, class A	163	1.033
Carpenters, class A	11	.905	Lathe operators, turret, class B	70	.816
Carpenters, class B	56	.822	Learners	101	.609
Carpenters, class C	22	.755	Machinists	116	1.010
Carpenters, flask	5	.758	Machine operators, all-around	25	.914
Casting cleaners	41	.669	Metal-saw operators	37	.676
Chippers, class B	58	.823	Milling-machine operators, class A	63	1.016
Chippers, class C	71	.796	Milling-machine operators, class B	55	.835
Coremakers, class A	73	1.022	Millwrights	21	.895
Coremakers, class B	2	(1)	Molders, bench	29	.963
Coremakers' helpers	13	.591	Molders, floor	108	.997
Core pasters	5	.704	Molders' helpers	34	.683
Crane followers	6	.720	Molders, machine, class A	14	1.117
Crane operators	140	.788	Molders, machine, class B	34	.960
Craters	18	.693	Packers	17	.770
Cupola tenders	13	.893	Painters, brush	32	.800
Cupola tenders' helpers	6	.700	Painters, dip	5	(1)
Die setters	1	(1)	Painters, spray	82	.817
Drill-press operators, class A	70	.951	Patternmakers, wood	56	1.097
Drill-press operators, class B	163	.820	Pipe fitters	26	.856
Drill-press operators, class C	61	.698	Planer operators	53	.915
Drop-hammer operators, class A	12	1.112	Platers	1	(1)
Drop-hammer operators, class B	5	.842	Pourers, class B	12	.758
Electricians	93	.770	Power-shear operators	53	.865
Elevator operators	1	(1)	Punch-press operators, class A	11	1.012
Firemen, stationary boiler	29	.786	Punch-press operators, class B	58	.813
Flask and pattern carriers	3	(1)	Punch-press operators, class C	5	.723
Foremen, working, class A	71	1.127	Repairmen, machine tool	30	.945
Foremen, working, class B	40	.964	Repairmen, product, class A	2	(1)
Foremen, working, class C	7	.741	Repairmen, product, class B	1	(1)
Gear cutters, class A	10	1.008	Repairmen, product, class C	1	(1)
Gear cutters, class B	18	.862	Riveters, pneumatic	43	.953
Gear finishers	1	(1)	Sandblasters	11	.751
			Sand mixers, hand	2	(1)

See footnote at end of table.

TABLE 3.—*Average Hourly Earnings of Day-Shift Workers in Selected Occupations in Construction-Machinery Plants, February–April 1942*—Continued

Occupation and class	Number of workers	Average hourly earnings	Occupation and class	Number of workers	Average hourly earnings
Males—Continued			*Males*—Continued		
Sand mixers, machine	12	$0.723	Truck drivers	30	$0.729
Screw-machine operators, class A	15	1.017	Truckers, hand	136	.698
Screw-machine operators, class B	49	.999	Truckers, power, inside	24	.733
Screw-machine operators, class C	4	(1)	Tumbler operators	6	.613
Shake-out men	28	.751	Watchmen	74	.561
Shaper operators	12	.916	Welders, hand, class A	229	1.006
Sheet-metal workers, class A	35	.966	Welders, hand, class B	172	.977
Sheet-metal workers, class B	54	.926	Welders, machine	1	(1)
Stock clerks	219	.712	Winders, class B	24	(1)
Straighteners	1	(1)	Winders, class C	5	(1)
Testers, class A	10	.974	Woodworkers	13	.845
Testers, class B	14	.817	*Females*		
Testers, class C	5	.690			
Thread-milling machine operators	3	(1)	All female workers	43	.554
Time clerks	47	.745			
Tool and die makers	57	1.096	Janitresses	8	(1)
Tool-grinder operators	47	.826	Winders, class B	35	(1)

[1] Number of plants and/or workers too small to justify computation of an average; data on numbers of workers are included in such cases to provide additional information on occupational distribution.

EARNINGS IN THE CASE-GOODS FURNITURE INDUSTRY [1]

Summary

A RECENT survey by the Bureau of Labor Statistics reveals that the hourly earnings of workers in case-goods furniture factories in 4 important centers of the industry have increased from 3.3 to 30.5 percent during the past 2 years. Rockford, Ill., the area having the highest wage level in April 1940, showed the smallest rate of increase, and High Point, N. C., the area with the lowest wage level in 1940, showed the greatest relative increase. In March–April 1942, over-all average hourly earnings ranged from a low of 48.0 cents in High Point to a high of 66.6 cents in Jamestown, N. Y.

Among the higher paid occupations in the case-goods furniture industry are cabinetmakers, hand carvers, machine rubbers, multiple-carving-machine operators, spindle carvers and sanders, class A tenoners and stickers, and class A band and jig sawyers. There is, however, no great consistency from area to area in the relative level of wages among the various occupations. Thus, class A tenoners and stickers, who are the highest paid of the occupational groups studied in Rockford and Grand Rapids, rank eighth in Jamestown; machine rubbers, who are highest in Jamestown, rank tenth in Rockford. The occupations which are paid the lowest wages show a more uniform pattern. Off-bearers received the lowest average earnings in each of the northern areas. Other low-paid classes are watchmen and janitors, stock movers and hand truckers, and laborers.

Because hours of work have lengthened during the past 2 years, weekly earnings have increased more than hourly earnings. The average weekly earnings were: Rockford, $28.34; Grand Rapids, $25.22; Jamestown, $24.87; and High Point, $19.32.

Characteristics of the Industry

The manufacture of case goods, including dining-room and bedroom furniture and some living-room furniture which is not upholstered, constitutes the major division of the wood household furniture industry. The pre-war production of case goods exceeded $150,000,000 annually. Although this product is manufactured in almost every section of the country, the chief centers are High Point, N. C.; Grand Rapids, Mich.; Jamestown, N. Y.; Rockford, Ill.; Gardner, Mass.; Evansville, Ind.; and York, Pa. These centers probably employ more than half of the wage earners in this branch of the industry.

The furniture industry employs male workers almost exclusively, although a few female workers are to be found in such occupations as hand sanders, hand rubbers, inspectors, and waxers. The payment of straight hourly rates prevails in this industry, although method of payment varies somewhat from area to area. Thus, the Jamestown and Grand Rapids areas each employ about half of their workers on an incentive basis—either piece rate or bonus—while in Rockford only about 10 percent of the workers are employed under an incentive system and few, if any, of the workers in the High Point area are employed at other than straight-time rates.

[1] Prepared in the Bureau's Division of Wage Analysis by Odis C. Clark, under the supervision of Harold R. Hosea.

RECENT TRENDS IN THE FURNITURE INDUSTRY

Two important trends have been discernible in the furniture industry during recent years. One of these has been a perceptible shifting of the industry from the North to the South, and the other has been a noticeable decrease in the proportion of skilled craftsmen. The regional shift was demonstrated in an earlier study of the furniture industry made by the Bureau of Labor Statistics.[2] Of 128 companies for which information was secured in 1937 and again in 1941, 16 had gone out of business by the latter date; all of these establishments were located in Northern States. An analysis of identical plants in 1937 and in 1941 showed that the volume of employment in those plants still operating had changed less than one-tenth of 1 percent among the group located in Northern States, while plants in Southern States had increased their employment by 25 percent during the 4-year period.

Among the northern firms there was a 5-percent decrease in the volume of skilled labor employed during the same period, while there were compensating increases in the employment of semiskilled and unskilled workers. In southern firms the volume of skilled labor increased by 15 percent, but the number of semiskilled workers increased by 25 percent and that of unskilled workers by 45 percent.

As late as 1939, the Bureau of the Census reported that about 70 percent of the wood household furniture output was still in the North and 30 percent in the South. It is probable that the South's share is now somewhat greater.

Method of Study

The data presented in this article were collected in connection with a wage dispute, and their nature and scope have been influenced by this purpose. Over-all average hourly and weekly earnings were obtained from all of the firms studied, and, in addition, average hourly earnings for selected occupations in which more than 80 percent of the workers in the several plants were classified. The information was compiled from pay rolls and other basic pertinent company records by the regular field staff of the Bureau.

The survey included 30 establishments in the furniture areas centering about 4 cities: Grand Rapids, High Point, Jamestown, and Rockford. These four areas are all important in the production of case goods, but do not present a balanced picture of the industry. Probably the most notable omission consists of certain lower wage areas in the South. For this reason, the data are presented by individual city only, and no attempt has been made to draw conclusions with regard to the industry as a whole. It is pertinent to mention that the Rockford and Jamestown areas are largely unionized, while the Grand Rapids and High Point areas are largely nonunion. The 30 plants included in the survey vary in size from about 15 employees to more than 500. Collectively they employ nearly 5,000 workers. Their wage levels are believed to be fairly representative of the case-goods branch of the industry in the respective areas.

[2] Bureau of Labor Statistics, Serial No. R. 1330: Earnings and Hours in the Furniture Industry, February 1941.

Hourly Earnings

INCREASE IN EARNINGS

Average hourly earnings in case-goods furniture factories in the four areas surveyed ranged from 48.0 cents in High Point to 66.6 cents in Jamestown during March and April 1942. Earnings, exclusive of penalty overtime payments, were slightly lower. It is apparent from table 1 that the averages have increased during recent months, but that the rate of increase has varied widely.

TABLE 1.—*Average Hourly and Weekly Earnings and Average Weekly Hours in Case-Goods Furniture Plants in 4 Areas, Selected Periods, 1940–42*

Month and year	Number of plants	Number of workers	Average hourly earnings			Average weekly hours	Average weekly earnings
			Gross rate [1]	Net rate [2]	Cumulative percentage increase		
Rockford, Ill.:							
April 1940	12	760	$0.592	$0.584		37.2	$22.04
February 1941	12	944	.585	.574	1.7	38.3	22.42
August 1941	[3] 13	1,192	.635	.584	.0	46.8	29.72
March–April 1942	13	1,122	.641	.603	3.3	44.2	28.34
Jamestown, N. Y.:							
April 1940	5	464	.537	.532		36.1	19.38
February 1941	5	523	.561	.549	3.2	38.9	21.86
August 1941	5	589	.653	.603	13.3	46.3	30.25
March–April 1942	5	523	.666	.657	23.5	37.4	24.87
Grand Rapids, Mich.:				[4]			
April 1940	7	1,502	.520	.509		38.9	20.22
February 1941	7	1,719	.533	.517	1.6	40.0	24.04
August 1941	7	1,812	.559	.517	1.6	46.1	25.75
March–April 1942	7	1,726	.592	.565	11.0	42.6	25.22
High Point, N. C.:							
April 1940	5	1,457	.359	.357		34.2	12.27
February 1941	5	1,578	.381	.370	3.6	40.0	15.24
August 1941	5	1,696	.437	.417	16.8	42.5	18.55
March–April 1942	5	1,450	.480	.466	30.5	40.2	19.32

[1] Gross rate includes penalty overtime payments.
[2] Net rate excludes estimated penalty overtime payments.
[3] The increase in the number of plants reflects the organization of a new company in Rockford in 1941.

Rockford, the area with the highest average hourly earnings in April 1940, shows the lowest rate of increase to April 1942, 3.3 percent. This percentage is based on estimated net earnings, exclusive of penalty overtime payments. The general rate of increase in the Grand Rapids area was 11.0 percent and that in the Jamestown area was 23.5 percent. Although the High Point region still paid the lowest wages of the four surveyed in the spring of 1942, it had shown the highest rate of increase in earnings. Hourly earnings for this area increased 30.5 percent during the 2-year period. This resulted in reducing the wage margin between this area and the three northern areas. The higher rate of increase was influenced by the 40-cent minimum wage set under the Fair Labor Standards Act effective in November 1941. Most of the increase in each of the areas occurred during the past year.

HOURLY EARNINGS IN SELECTED OCCUPATIONS

Straight-time average hourly earnings for the various occupational groups show, in general, the same regional differences as those demonstrated by over-all average hourly earnings. There is not, however, complete consistency in the relative levels of wages by occupation from one area to another. Examination of table 2 reveals that class A tenoners and stickers received the highest wages among the groups

studied in Rockford and Grand Rapids but ranked eighth in Jamestown. Machine rubbers, who were the highest paid in Jamestown, ranked tenth in Rockford. Among the lower paid occupations, however, the pattern is more uniform.

TABLE 2.—*Average Hourly Earnings of Male Workers in Case-Goods Furniture Plants in 4 Areas by Department and Occupation, March–April 1942*

Department and occupation	Rockford, Ill.		Jamestown, N. Y.		Grand Rapids, Mich.		High Point, N. C.	
	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings
All workers [1]	911	$0.623	473	$0.650	1,255	$0.572	1,108	$0.453
Veneer room	34	.602	23	.558	82	.568	22	.480
Hand tapers	3	.500			14	.538	2	(2)
Machine glue spreaders	12	.532	13	.525	31	.545	9	.428
Machine tapers	5	.614	2	(2)	9	.504	4	.468
Veneer cutter and matchers	10	.720	6	.650	23	.670	7	.559
Veneer sawyers	4	.583	2	(2)	5	.438		
Machining	313	.599	148	.558	327	.566	335	.459
Band and jig sawyers, class A	25	.718	5	.798	24	.662	19	.581
Boring-machine operators	19	.628	8	.618	27	.638	12	.455
Tenoners and stickers, class A	14	.747	6	.739	12	.728	6	.527
Tenoners and stickers, class B	5	.635	3	.538	1	(2)		
Drum sanders, class A	7	.647	4	.590	9	.660	4	.545
Gluers-up	21	.535	7	.574	30	.511	32	.436
Off-bearers	81	.415	55	.450	106	.431	161	.413
Planers, and jointers, class A	19	.639	4	.620	18	.593	12	.502
Routers, class A	13	.671			9	.686	15	.499
Sawyers (cut-off and rip)	33	.686	24	.602	41	.605	26	.525
Shapers, class A	19	.718	9	.672	24	.686	17	.590
Shapers, class B	11	.647	5	.626	1	(2)	8	(2)
Trim sawyers	37	.686	7	.650	21	.714	13	.487
Sanding and second machining	64	.670	33	.679	95	.700	84	.503
Belt and automatic stroke sanders	34	.655	18	.717	27	.641	41	.487
Dovetailers	3	.632	6	.635	6	.648	7	.499
Edge and upright sanders	4	.608	7	.610	21	.623	21	.454
Hand carvers	9	.705	1	(2)	17	.901	1	(2)
Multiple-carving-machine operators	6	.725			14	.712	3	(2)
Spindle carvers and/or spindle sanders	7	.708	1	(2)	10	.693	9	.649
Assembly	191	.677	95	.726	273	.607	196	.480
Cabinetmakers	108	.716	72	.755	128	.673	71	.566
Hand sanders	23	.616			33	.532	48	.427
Subassemblers	60	.628	23	.635	112	.554	77	.433
Finishing	224	.642	138	.739	369	.542	315	.430
Cartoners	6	.604			8	.478	9	.435
Craters, class A	18	.633	6	.809	35	.568	36	.408
Final patchers	27	.672	17	.758	15	.576	21	.465
Glazers and matchers, class A	17	.695	4	(2)	25	.570	38	.466
Hand rubbers	21	.662	24	.718	90	.533	40	.414
Machine rubbers	18	.701	8	.972	2	(2)	15	.433
Sealing sanders	21	.551	4	.892	41	.461	49	.425
Sprayers	36	.676	27	.775	52	.585	10	(2)
Trimmers, class A	28	.691	12	.730	36	.620	13	.459
Trimmers, class B	4	.460	5	.558	3	(2)	3	(2)
Waxers and cleaners	6	.522	7	.681	19	.503	13	.400
Wipers-off	16	.544	23	.644	43	.507	45	.405
Maintenance	40	.544	18	.559	57	.519	48	.448
Firemen	14	.539	8	.636	16	.512	10	.424
Millwrights and/or electricians	10	.713	1	(2)	10	.658	6	.650
Watchmen and/or janitors	15	.439	7	.453	24	.485	23	.417
Interdepartment	45	.479	18	.475	52	.473	108	.410
Laborers	30	.464	17	.463	26	.432	48	.392
Stock movers and hand truckers	15	.509			16	.475	56	.414

[1] The averages presented here for all workers differ slightly from the net rates presented in table 1 primarily because the present averages include only workers in the selected occupations listed and because the effect of penalty overtime payments on the over-all averages in table 1 is an approximation.

[2] Number of plants and/or workers insufficient to justify computation of an average.

In Rockford, in March–April 1942, the occupational averages ranged from 41.5 cents per hour for off-bearers to 74.7 cents for tenoners and stickers.[3] Three other occupational groups had hourly averages below 50 cents—class B trimmers, watchmen and janitors, and laborers. Nine occupational groups, in addition to the tenoners and stickers, showed hourly earnings over 70 cents—class A band and jig sawyers, cabinetmakers, hand carvers, machine rubbers, millwrights and electricians, class A shapers, veneer cutters and matchers, spindle carvers and sanders, and multiple-carving-machine operators.

The range of earnings in the Jamestown area was from 45.0 cents for off-bearers to 97.2 cents for machine rubbers. In this area only two other occupational groups had average hourly earnings under 50 cents—watchmen and janitors, and laborers. Eight other occupational groups had hourly earnings which averaged over 70 cents—class A band and jig sawyers, belt and automatic stroke sanders, cabinetmakers, class A tenoners and stickers, final patchers, class A craters, shading and lacquer sprayers, and trimmers.

Occupational earnings in Grand Rapids ranged from 43.1 cents for off-bearers to 90.1 cents for hand carvers. In this area five other occupational groups had hourly earnings under 50 cents—sealing sanders, veneer sawyers, laborers, stock movers and hand truckers, and watchmen and janitors. For three other occupational groups the average hourly earnings were over 70 cents—class A tenoners and stickers, trim sawyers, and multiple-carving-machine operators.

In the High Point area, occupational earnings ranged from 39.2 cents per hour for laborers to 65.0 cents for millwrights and electricians and 64.9 cents for spindle carvers and sanders.

Average Weekly Earnings

Because of the longer workweek, workers in Rockford received higher weekly earnings than workers in any of the three other areas; these averaged $28.34 in March–April 1942. Workers in the Grand Rapids area averaged $25.22 and those in the Jamestown area averaged $24.87 per week. Jamestown thus occupied the lowest position among the northern furniture centers, as it was the only area where weekly hours averaged below 40 (table 1).

The average weekly earnings in the High Point area were $19.32. This was the only area where weekly earnings were higher than in August 1941.

The rate of increase in weekly earnings was higher than for hourly earnings during the 2-year period covered because in each of the four areas the average weekly hours of work had been increased.

[3] Some occupations ordinarily comparable on the basis of earnings and duties have been combined in determining average earnings.

EARNINGS IN THE SMELTING AND REFINING OF NONFERROUS METALS, AUGUST 1941 [1]

Summary

STRAIGHT-TIME earnings in the smelting of nonferrous metals in August 1941 averaged 79.8 cents per hour. Earnings in nonferrous-metal refining averaged 78.3 cents per hour. In both branches of the industry substantial proportions of workers were concentrated in the wage range from 67.5 cents to 87.5 cents. These facts are revealed by a recent study of the nonferrous-metal smelting and refining industry, conducted by the Bureau of Labor Statistics.

Differentiated by product, average earnings of smelter workers were lowest in mercury smelters (60.5 cents) and highest in zinc smelters (83.5 cents). Earnings in copper and lead smelters averaged 75.0 cents and 76.8 cents, respectively. Establishments engaged in the electrolytic refining of copper paid an average of 77.9 cents an hour and those producing zinc by the electrolytic method paid hourly wages averaging 80.9 cents.

Among the several areas in which this industry is found, the southwestern region paid the lowest wages, averaging 63.7 cents an hour in smelting and 68.7 cents in refining. The East paid the highest wages, with an average of 89.1 cents in smelting and 82.2 cents in refining.

Almost three-fifths (58.5 percent) of the workers in nonferrous-metal smelters worked exactly 40 hours weekly at the time of the Bureau's study, and an additional 25.1 percent worked 48 hours or more. In nonferrous-metal refining almost three-quarters of the employees worked exactly 40 hours weekly.

Average total weekly earnings in the electrolytic production of zinc were $30.84, and in electrolytic copper refining, $31.67. The corresponding figures for smelting extended from $30.52 in the lead branch to $34.70 in the copper branch.

Characteristics of the Industry

Wage structure in the primary smelting and refining of nonferrous metals is conditioned in large measure by the characteristic technical processes of the industry. These processes involve work under difficult, unpleasant, and frequently dangerous conditions, resulting from the heat of the furnaces, the metal and acid fumes, and dust. To some extent, too, the operations in this branch of the nonferrous-metals industry require the possession by the labor force of specialized technical knowledge, especially at the furnaces and in the maintenance departments. While no formal apprenticeship or other training is ordinarily required for these operations, proficiency in many can be acquired only after years of experience.

Smelting is comprised of those processes whereby concentrated ores of varying composition are treated with heat in order to separate the various metals from the waste materials. After smelting, the metals generally contain some impurities and, in order to bring them up to the specifications of the consuming market, require further refining. Refining of metals to eliminate impurities is accomplished through a

[1] Prepared in the Division of Wage Analysis by Harry Ober and Jacob Loft. This is the second of a series of articles reporting on the wage structure of the nonferrous-metals industry. The first article, which dealt with the extraction and dressing of nonferrous metal ores, appeared in the Monthly Labor Review for June 1942.

variety of technical methods, among which the electrolytic method is prominent. Some ores, notably the oxides, are commonly treated by the leaching method; instead of being subjected to smelting, the ores are dissolved by means of chemicals and recovered from the solution by passing a current through it. This results in the deposition of the pure metal upon cathodes.

It is difficult to draw a sharp line of demarcation between smelting and refining, since the objective of both processes is to obtain pure metal, and in many instances both processes involve similar operations. It is general practice, however, to distinguish establishments within the industry according to the specific processes with which individual plants are primarily concerned. These processes are: (a) Smelting copper, lead, zinc, mercury, etc.; (b) electrolytic refining of copper; and (c) production of electrolytic zinc and lead.

Smelting processes differ widely depending upon the metal treated and upon the composition and complexity of the ores. Copper smelters, for the most part, process the concentrates in three distinct stages: roasting and sintering, reverberatory furnace smelting, and converting. In some instances where blast furnaces are utilized, roasting is dispensed with. Moreover, Michigan ores, which contain the copper in pure form, employ reverberatory furnaces alone, both for smelting and for furnace refining. As indicated previously, some ores are processed by the leaching method and heat treatment becomes a minor phase of the entire process in these instances. These differences in operations exert considerable influence upon occupational patterns and therefore upon wage structure.

The most common method in smelting zinc concentrates is the horizontal or "batch" retort process. The prevailing sequences in this process are roasting and distillation. Roasting liberates the sulphurous gases from the concentrates and converts the zinc into zinc oxide. The gases are converted generally into sulphuric acid, a common by-product of zinc smelting, while the zinc oxide is mixed with pulverized coal and ores, and fed into retorts which are placed in a furnace. The coal oxidizes the zinc and the latter, in the form of vapors, settles and cools in condensers. The zinc is then cast into slabs. Frequently, the zinc is further refined by distillation to meet market requirements. Some firms are now utilizing an improved variation of this process, i. e., vertical retort furnace smelting. In horizontal retort furnaces the smelting process is intermittent, since the completion of the process in one batch of retorts requires an interruption in the operations for recharging; by way of contrast, the vertical retort furnace permits continuous charging of the retorts, with the charge in the form of pressed briquets of ore and pulverized coal. Zinc-smelting operations require large numbers of workers around the furnaces, in the manufacture of the clay retorts, and in pulverizing the coal.

The most prevalent method of lead smelting involves roasting of the concentrates and smelting in blast furnaces. The product from the blast furnace, however, contains a number of impurities and various methods of refining the lead are necessarily associated with smelters. Involved in the refining process are methods of softening the lead or removing the copper and antimony content, and desilverization or elimination of the silver content from the lead. When high-grade lead is required it may be refined electrolytically.

Electrolytic copper refineries remove whatever impurities remain in the blister copper or matte after the smelting operation, and recover,

in addition, the precious metals contained in the blister copper. These refineries engage in furnace refining, as well as in treating the copper electrolytically. Here the blister copper is melted in reverberatory furnaces, oxidized, poled, and cast into anodes. These anodes are loaded into tanks containing an electrolyte and cathodes made from thin copper "starting" sheets. When the current passes from the anode through the electrolyte to the cathode, pure copper particles are deposited on the latter. This copper is then charged into furnaces and ultimately is drawn, to be cast into wire bars, billets, cakes, and other commercial forms. The slime which collects at the bottom of the electrolytic tanks contains impurities as well as recoverable precious metals thrown off in the transfer of copper from anode to cathode. This slime is removed and processed further to obtain valuable byproducts.

The production of zinc by the electrolytic method generally involves leaching instead of smelting. As indicated earlier, this process consists of roasting the ore and dissolving the metal constituents by means of sulphuric acid. The electrolyte, after purification, is treated by passing an electric current through it and the metallic zinc is thus deposited in layers on a cathode. The zinc is then stripped off the cathodes, melted and cast into slabs. The process as a whole bears a good deal of similarity to the production of copper by the leaching method. This method of producing zinc has become increasingly important since its introduction in 1915 and accounts at present for about one-fifth of the total production.

Background of the Industry

Census coverage of primary smelting and refining establishments in 1919 included those plants with products valued at $500 or more. In succeeding Census tallies no data were collected for establishments with annual products under $5,000. This change in coverage, however, probably had little effect on the number of establishments reported in the industry, for the technical character of the operations involved, as well as the comparatively high value per unit of output, contributes to the establishment and maintenance of large plants.

The average number of wage earners in copper, lead, and zinc primary smelting and refining reported by the Census in 1919 was about 40,000. By 1929 the size of the labor force in this industry had declined by almost 22 percent from the 1919 mark. The depression following 1929 resulted in a further drastic shrinkage of the work force by 1933 to scarcely more than one-third of the 1919 level. Despite the recovery in subsequent years, the labor force reported by the Census of 1937 was only three-fourths as great as that of 1919. In 1939, Census figures for primary smelting and refining of nonferrous metals included the production of aluminum from bauxite, in addition to copper, lead, and zinc, and the labor force comprised 27,630 workers. Following 1939, however, employment in this industry expanded considerably so that by August 1941, the period of the Bureau's wage survey, employment in most plants was well above the 1939 level.

SIZE OF ESTABLISHMENTS

As has been indicated earlier, operations in the primary smelting and refining industry (which treats derivatives of virgin nonferrous ores)

are carried on mainly by medium-sized and large establishments. Thus, of the 63 establishments reported by the Census of 1939, nearly a third employed over 500 wage earners, and over one-half employed from 101 to 500 wage earners. Only two establishments were reported to employ less than 50 workers. On the other hand, none of the establishments employed more than 2,500 wage earners.

Of the 63 establishments reported by the Census of 1939 to be engaged in the primary smelting and refining of nonferrous metals, 59 were operated by central administrative offices controlling two or more plants. The remaining 4 were operated under some form of independent management. With the exception of 1 establishment, smelters and refineries were owned by corporations. In general, smelting and refining facilities are highly integrated with respect to business control. In copper production, for example, the American Bureau of Metal Statistics reported that in 1940, 10 firms owned plants which smelted ore or concentrates from 25 or more extraction sources. Similarly, 8 firms controlled the refineries which treated copper from 30 or more commercial sources.[2]

LOCATION OF THE INDUSTRY

Despite the continual westward shift of the nonferrous-mining industry over a period of years, the eastern States of New York, New Jersey, Pennsylvania, Maryland, and West Virginia comprise the most important region for smelting and refining nonferrous metals (copper, lead, and zinc); two-fifths of the wage earners in this industry are found in these States. Of the States included in this geographic division, West Virginia and New York are relatively unimportant from the standpoint of employment. The Western States, with more than twice as many establishments as the Eastern States, accounted for somewhat over one-third of the total employment in 1939. The Central States, where fully one-third of the establishments in the industry are located, accounted for about one-fourth of total employment in the industry in that year. A variety of factors are responsible for the location of a considerable bulk of this industry in the East. Of prime importance in the smelting of domestic ores is proximity to sources of fluxes and, of course, of concentrates; proximity to ports of entry is important for smelters and refineries which use imported concentrates and metals. In addition, the early accumulation of capital equipment in eastern smelters and refineries, intended to supply nearby fabrication centers, played an important role in maintaining the dominant position of the East within the industry.

CHARACTERISTICS OF THE LABOR FORCE

Smelting and refining of nonferrous metals involves a number of specialized technical operations and the labor force of this industry manifests distinctive characteristics. In all branches of the industry a considerable amount of labor is employed in the yards at handling and storing concentrates and metals, as well as in delivery of these materials from storage to mix rooms, roasters, and furnaces. Many of these operations are accomplished with the aid of hoists, cranes, trucks, jitney cars, and narrow-gage railroads. In the mix rooms ores and mattes are crushed, ground, and treated in a manner similar to milling. These tasks are performed by operators and helpers.

[2] See Yearbook of the American Bureau of Metal Statistics, 1940, pp. 21–23.

Coal pulverizing and gas producing are also important operations. The operations of roasting, smelting, and converting are performed by furnace operators who are skilled workers and by furnace helpers who may either specialize in one operation or perform a number of operations. Most smelters, especially zinc smelters, produce their own clay retorts and condensers, and other refractory vessels in pottery departments. In all stages of the process, metals are weighed, checked, sampled, and tested by samplers and testers. The recovery of metals from dust and from flues, and the treatment of furnace fumes in Cottrell treaters involve considerable amounts of specialized labor. In the electrolytic refineries much of the labor force is required to operate electrolytic tanks and to check and eliminate the causes of short circuits which results in waste of power, labor, and materials. Although many of these operations can be performed by relatively unskilled labor after a short period of training, the rates for such labor are somewhat higher in this than in other industries because of the difficult and unpleasant conditions of work.

Many of the processes in the industry are intermittent, and in order to provide more or less continuous employment workers are frequently shifted, in the course of a week's work, among a number of different operations; for example, from furnace operator to laborer. In times of lay-offs employers generally retain the most versatile workers in lower paying occupations. With the expansion of production in the industry in recent months, upgrading of workers to higher paying occupations has taken place. Simultaneously, new workers have been hired for the unskilled operations.

The labor force in this industry is composed predominantly of male white workers (table 1). Of the 13,579 employees surveyed by the Bureau, 93.3 percent were white other than Mexican, 4.7 percent were Mexicans, and 1.8 percent were Negroes. In the refineries 84.0 percent of the 8,108 workers surveyed were white other than Mexican, 10.6 percent were Negroes, and 5.4 percent were Mexicans. In both smelting and refining most of the Mexican labor was found in the Southwest; in this region 50.4 percent of the smelter workers and 29.6 percent of the refinery employees were Mexicans. Over 95 percent of the Negroes working in refineries were employed in the East, where they accounted for 17.2 percent of the labor force in the surveyed plants.

TABLE 1.—*Racial Composition of Labor Force in Nonferrous-Metal Smelting and Refining, August 1941*

Region [1]	All workers				White, other than Mexican		Negro		Mexican		Other
	Smelting		Refining		Smelting (percent)	Refining (percent)	Smelting (percent)	Refining (percent)	Smelting (percent)	Refining (percent)	Smelting (percent)
	Number	Percent	Number	Percent							
United States	13,579	100.0	8,108	100.0	93.3	84.0	1.8	10.6	4.7	5.4	0.2
Northwest	4,708	100.0	1,465	100.0	99.3	99.6	.4	.4	.1	-------	.2
Southwest	1,091	100.0	1,464	100.0	47.6	69.1	.2	1.3	50.4	29.6	1.8
North Central	1,479	100.0	396	100.0	82.2	95.5	12.1	3.0	5.7	1.5	-------
South Central	2,099	100.0	-------	-------	99.3	-------	.7	-------	-------	-------	-------
East	4,202	100.0	4,783	100.0	99.5	82.8	.5	17.2	-------	-------	-------

[1] For States included in regions, see footnote to table 6.

UNIONIZATION

In the smelters studied by the Bureau nearly three-fifths (57.3 percent) of the employees were working in plants covered by union agreements (table 2). The bulk of the union membership in smelters was affiliated with the C. I. O. The International Union of Mine, Mill, and Smelter Workers is the most important union in this field. Most of the A. F. of L. membership found in the surveyed smelters was in the North Central region. Over three-fifths (63.9 percent) of the employees in refining were in plants covered by union agreements. Most of this union group was found in the East.

TABLE 2.—*Unionization of Workers in Nonferrous-Metal Smelters and Refineries, August 1941*

Region [1]	Smelting						Refining					
	Total		Union establishments [2]		Nonunion establishments		Total		Union establishments [2]		Nonunion establishments	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
United States	13,579	100.0	7,784	57.3	5,795	42.7	8,108	100.0	5,181	63.9	2,927	36.1
Northwest	4,708	100.0	3,752	79.7	956	20.3	1,465	100.0	1,151	78.6	314	21.4
Southwest	1,091	100.0			1,091	100.0	1,464	100.0	451	30.8	1,013	69.2
North Central	2,099	100.0	955	45.5	1,144	54.5	396	100.0	253	63.9	143	36.1
South Central	1,479	100.0	1,479	100.0								
East	4,202	100.0	1,598	38.0	2,604	62.0	4,783	100.0	3,326	69.5	1,457	30.5

[1] For States included in regions, see footnote to table 6.
[2] Includes plants covered by agreements with independent unions.

Scope of Survey

The survey of nonferrous smelting and refining was based on a sample of somewhat more than half of all establishments smelting or refining substantial quantities of copper, lead, or zinc. In addition, a number of mercury smelters, which were found to be generally associated with mines, were also included in this study. In order to assure validity in the selection of the sample, careful consideration was given to size of establishment, type of metal produced, form of processing, geographic location, and corporate affiliation. Smelters and refineries employing less than 20 persons were not covered, except in mercury smelting. In the latter industry only the production unit engaged in smelting was included. The data were collected by trained field representatives of the Bureau for a pay-roll period in August 1941. The information obtained included detailed records of hours worked, total earnings, and occupational descriptions, as well as the sex and color of each employee.

In all, the sample included some 33 production units in copper, lead, and zinc smelting and refining, and 22 in mercury smelting. The number of workers surveyed in these plants totaled 21,687 (table 3).

TABLE 3.—*Nonferrous-Metal Smelters and Refineries Covered by Bureau's Survey, August 1941*

Region [1]	Smelting			Refining		
	Units	Workers		Units	Workers	
		Number	Percent		Number	Percent
United States	43	13,579	100.0	12	8,108	100.0
Northwest	20	4,708	34.7	3	1,465	18.1
Southwest	6	1,091	8.0	3	1,464	18.1
North Central	4	1,479	10.9	3	396	4.9
South Central	7	2,099	15.5			
East	6	4,202	30.9	3	4,783	58.9

[1] For States included in regions, see footnote to table 6.

Method of Wage Payment

The workers in the surveyed smelters and refineries were paid preponderantly upon a time basis. Over nine-tenths of the labor force in both smelters and refineries received time rates (table 4). The largest concentrations of piece and incentive bonus workers in nonferrous-metal smelters were found in the East. Two and one-half percent of the smelter workers in this region were paid by the piece, and an additional 23.5 percent were paid on an incentive bonus basis.

TABLE 4.—*Distribution of Workers in Nonferrous-Metal Smelting and Refining by Method of Wage Payment and by Region, August 1941*

Region [1]	All workers				Time workers			
	Smelting		Refining		Smelting		Refining	
	Workers	Percent	Workers	Percent	Workers	Percent	Workers	Percent
United States	13,579	100.0	8,108	100.0	12,385	91.2	7,833	96.6
Northwest	4,708	100.0	1,465	100.0	4,675	99.3	1,405	95.9
Southwest	1,091	100.0	1,464	100.0	1,091	100.0	1,459	99.7
North Central	1,479	100.0	396	100.0	1,456	98.5	392	99.0
South Central	2,099	100.0			2,056	98.0		
East	4,202	100.0	4,783	100.0	3,107	74.0	4,577	95.7
	Piece workers				Bonus workers			
United States	181	1.3	35	0.4	1,013	7.5	240	3.0
Northwest	27	.6			6	.1	60	4.6
Southwest			5	.3				
North Central	12	.8	4	1.0	11	.7		
South Central	36	1.7			7	.3		
East	106	2.5	26	.5	989	23.5	180	3.8

[1] For States included in regions, see footnote to table 6.

The basis for bonus payments in smelters and refineries varied with the character of the task performed. In some cases, men working in tank houses were paid an efficiency bonus calculated with reference to economy in the use of electric current. Bonuses were also paid to stripping gangs on the basis of output above set standards. Frequently casting crews on the casting wheel were paid a bonus for each round

cast above a set number of rounds per day. Bonuses were also awarded in some cases for furnaces charged above set scores. Piece rates were prevalent in smelter yards for unloading concentrates and materials and for loading metals.

It is customary in smelters and refineries to pay workers for a full shift in certain bottleneck operations, such as the stripping of cathodes and charging of furnaces, and to permit them to leave the plant when the work is completed in less time. In these instances expensive equipment is involved and the completion of these operations with dispatch may speed up all other operations. Such "finish-go-home" arrangements were found to prevail in many smelters and refineries. In some instances the day's work varied considerably and in other instances it regularly required about 6 hours, but 8 hours' pay was cutomarily provided. In computing hours of work for these cases the Bureau has credited "finish-go-home" employees with full-time hours.

The practice of adjusting general levels of pay in accordance with a "sliding scale" based upon the price of metals is also prevalent in this industry, as in mining and milling. Some of the union agreements provide for such adjustments.

Hourly Earnings

WARTIME TREND OF EARNINGS

Monthly data on average hourly earnings reported regularly to the Bureau by a substantial number of smelters and refineries indicate that the outbreak of the war in Europe resulted in no sharp and substantial jump in wages in this industry. Average hourly earnings in the smelting and refining of copper, lead, and zinc increased, in fact, by only about 2 percent from August 1939 to August 1940. During the year preceding the Bureau's survey, however, wages rose steadily and appreciably; in the month of the survey, August 1941, average earnings were approximately 15 percent above the level of a year earlier. This increase, little of which was due to premium overtime payments, reflected the growing influence of labor unions and the industry's efforts to attract more workers.

Hourly earnings in the industry have continued to increase since the time of the Bureau's survey, and in March 1942 were 8 percent above the level of August 1941. The analysis presented in this article, therefore, should be considered as a "stop-action" picture of an industry in transition.

EARNINGS IN AUGUST 1941

Excluding overtime payments, average hourly earnings in zinc smelters were 83.5 cents (table 5). In lead smelters the corresponding average was 76.8 cents; in copper smelters, 75.0 cents; and in mercury smelters, 60.5 cents. Average hourly earnings were increased from 0.6 cent in lead smelting to 5.9 cents in mercury smelting by the inclusion of payment for overtime.

Straight-time average hourly earnings of individual workers in zinc smelters ranged from 30.0 cents to $2.014. In this branch of nonferrous-metal smelting over half (51.3 percent) of the workers received average hourly earnings of 72.5 but under 92.5 cents.

TABLE 5.—*Percentage Distribution of Workers in Nonferrous-Metal Smelting and Refining by Average Hourly Earnings (Excluding Overtime) and by Branch, August 1941*

Average hourly earnings	Smelting				Copper refining (electrolytic)	Electrolytic zinc production [1]
	Zinc	Copper	Lead	Mercury		
Under 37.5 cents	0.1	0.1	0.1	13.4	0.1	
37.5 and under 40.0 cents	(2)			2.2	(2)	
40.0 and under 42.5 cents	(2)		.1	8.1	.2	0.1
42.5 and under 45.0 cents	.1	1.3			.3	
45.0 and under 47.5 cents	(2)	1.1	.3	.7	3.9	.1
47.5 and under 50.0 cents	.1	.1	.6		2.3	.2
50.0 and under 52.5 cents	.2	3.5		2.2	1.4	.5
52.5 and under 55.0 cents	.1	1.3	.4	4.4	.9	
55.0 and under 57.5 cents	.2	2.1	.2	2.2	.5	
57.5 and under 60.0 cents	.7	2.4	.2	4.4	.3	.5
60.0 and under 62.5 cents	2.6	3.1		9.0	.6	
62.5 and under 65.0 cents	4.1	3.2	10.1	3.0	1.0	.1
65.0 and under 67.5 cents	3.7	3.1	10.4	14.9	.4	
67.5 and under 70.0 cents	7.7	15.4	10.8	5.2	11.6	5.8
70.0 and under 72.5 cents	5.6	10.0	14.2	14.2	4.3	12.7
72.5 and under 75.0 cents	7.5	3.6	4.2	4.4	8.4	7.6
75.0 and under 77.5 cents	8.3	8.9	14.1	2.2	13.2	9.8
77.5 and under 80.0 cents	5.2	8.8	4.9	3.7	11.5	12.0
80.0 and under 82.5 cents	4.4	6.9	5.5	.7	8.1	3.1
82.5 and under 85.0 cents	8.5	6.7	2.6	.7	5.4	18.9
85.0 and under 87.5 cents	6.9	3.2	4.1		5.0	8.7
87.5 and under 90.0 cents	4.7	2.3	3.4	.7	4.5	10.4
90.0 and under 92.5 cents	5.8	3.0	4.0		3.2	1.3
92.5 and under 95.0 cents	5.2	1.3	2.4		2.4	.2
95.0 and under 97.5 cents	2.9	3.0	1.3		1.8	.4
97.5 and under 102.5 cents	4.6	1.4	1.6		3.5	4.1
102.5 and under 107.5 cents	3.7	1.5	1.0	.7	2.1	2.0
107.5 and under 112.5 cents	1.7	1.2	.4	1.5	1.1	.4
112.5 and under 117.5 cents	1.0	.4	.5		.3	.2
117.5 cents and over	4.4	1.1	2.6	1.5	1.7	.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of workers	7,983	4,366	1,095	135	6,785	1,323
Number of units	14	9	4	16	8	4
Average hourly earnings	$0.835	$0.750	$0.768	$0.605	$0.779	$0.809
Average hourly earnings (including punitive overtime)	$0.848	$0.790	$0.774	$0.664	$0.787	$0.814

[1] Includes 1 lead refinery.
[2] Less than a tenth of 1 percent.

The average hourly earnings of the 4,366 workers in copper smelters ranged from 34.4 cents to $1.553. Over three-fifths (63.4 percent) of these employees were concentrated in the wage class of 65.0 but under 85.0 cents.

Almost three-quarters (74.2 percent) of the labor force in lead smelters received 62.5 but under 82.5 cents per hour. In mercury smelting, 57.3 percent of the workers earned 52.5 but under 72.5 cents per hour.

Straight-time average hourly earnings were 77.9 cents in electrolytic copper refineries and 80.9 cents in electrolytic zinc-production plants. Hourly earnings were increased by 0.8 cent in electrolytic copper refining and by 0.5 cent in electrolytic zinc production by the inclusion of overtime payments.

Although the over-all range of average hourly earnings in electrolytic copper refining extended from 34.4 cents to $1.956, 67.5 percent of the workers in this branch earned 67.5 but under 87.5 cents per hour. In electrolytic zinc production, over four-fifths (83.2 percent) of the workers received 70.0 but under 90.0 cents per hour.

It is of interest to note that in the nonferrous-metal smelters and refineries covered by the Bureau's survey, punitive overtime payments amounted to 2.7 percent of the total wage bill. The corresponding proportion in nonferrous mining and milling was 5.0 percent.

PERCENTAGE DISTRIBUTION OF WORKERS IN NONFERROUS METAL SMELTING AND REFINING
BY AVERAGE HOURLY EARNINGS, EXCLUDING OVERTIME, AND BY BRANCH
AUGUST 1941
SMELTING TOTAL
REFINING TOTAL
ZINC SMELTING
COPPER SMELTING
LEAD SMELTING
MERCURY SMELTING
COPPER REFINING (ELECTROLYTIC)
ELECTROLYTIC PRODUCTION OF ZINC
0.3
12.0
56.0
28.5
3.2
0.1
9.7
64.0
24.6
1.6
0.1
8.1
50.9
36.5
4.4
0.1
18.1
63.4
17.3
1.1
0.1
11.9
66.7
18.7
2.6
15.3
34.0
46.0
2.9
0.1
11.4
62.9
23.9
1.7
1.5
69.9
27.7
0.9
0
10
20
30
40
50
60
70
80
90
100
PERCENT OF TOTAL
UNDER 40.0 CENTS
40.0 CENTS AND UNDER 65.0 CENTS
65.0 CENTS AND UNDER 85.0 CENTS
85.0 CENTS AND UNDER 117.5
117.5 CENTS AND OVER
UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

REGIONAL DIFFERENCES

Hourly earnings, excluding overtime, in all smelters covered by the Bureau's survey averaged 79.8 cents, while in all refineries covered the corresponding average was 78.3 cents (table 6). Regional differences in average straight-time hourly earnings in smelters were spanned by a range from 63.7 cents in the Southwest to 89.1 cents in the East. The southwestern figure was thus 80 percent and the eastern figure was 112 percent of national average hourly earnings. In nonferrous-metal refineries, the regional range in average hourly earnings extended from 68.7 cents in the Southwest (or 88 percent of the United States average) to 82.2 cents in the East (or 105 percent of the United States average).

TABLE 6.—*Percentage Distribution of Workers in Nonferrous-Metal Smelting and Refining, by Average Hourly Earnings (Excluding Overtime) and by Region,*[1] *August 1941*

Average hourly earnings (in cents)	United States		Northwest		Southwest		North Central		South Central	East	
	Smelting	Refining	Smelting	Refining	Smelting	Refining	Smelting	Refining	Smelting	Smelting	Refining
Under 37.5	0.3	0.1	0.1	0.1	1.4	0.2	------	------	0.7	------	(2)
37.5 and under 40.0	(2)	(2)	------	------	------	------	------	------	.2	------	(2)
40.0 and under 42.5	.1	.2	.1	------	------	------	0.1	0.3	.4	------	0.3
42.5 and under 45.0	.5	.2	------	.1	5.3	.9	.1	------	.1	------	.1
45.0 and under 47.5	.4	3.3	(2)	.1	4.2	16.5	.1	4.8	.2	(2)	.1
47.5 and under 50.0	.1	2.0	(2)	.1	.2	5.9	.2	17.6	.5	(2)	(2)
50.0 and under 52.5	1.3	1.2	.3	------	13.7	4.4	------	6.6	.3	(2)	.2
52.5 and under 55.0	.6	.8	.2	------	5.1	3.1	.1	4.0	.3	(2)	(2)
55.0 and under 57.5	.8	.4	.2	.1	8.1	.4	.1	1.3	.2	0.1	.4
57.5 and under 60.0	1.3	.3	.3	.1	9.2	1.0	.1	1.0	.3	1.1	.1
60.0 and under 62.5	2.6	.5	.4	.1	5.5	1.6	12.4	.5	3.5	.5	.3
62.5 and under 65.0	4.3	.8	1.3	.2	9.5	2.3	7.1	.3	4.9	5.0	.6
65.0 and under 67.5	4.2	.3	3.0	.1	6.2	1.3	8.2	------	4.2	3.5	.2
67.5 and under 70.0	10.3	10.6	22.3	28.4	1.0	6.1	14.2	1.0	1.9	2.2	7.4
70.0 and under 72.5	7.8	5.7	13.0	7.9	7.5	7.0	3.3	13.3	5.9	4.6	4.0
72.5 and under 75.0	5.9	8.3	8.6	4.8	3.0	5.7	2.3	8.1	6.7	4.7	10.2
75.0 and under 77.5	8.9	12.6	13.6	15.9	1.8	2.6	10.0	6.8	7.3	5.9	15.1
77.5 and under 80.0	6.3	11.6	8.8	9.4	5.6	8.5	3.6	2.0	5.9	5.0	13.9
80.0 and under 82.5	5.2	7.3	5.6	5.1	3.4	2.7	4.9	1.3	7.5	4.4	9.8
82.5 and under 85.0	7.4	7.6	6.1	10.0	.5	13.0	6.6	1.3	16.1	6.5	5.7
85.0 and under 87.5	5.4	5.6	1.6	2.5	2.6	4.0	9.0	17.6	9.2	7.3	6.1
87.5 and under 90.0	3.8	5.5	3.0	5.6	1.9	6.6	2.2	1.5	4.9	5.2	5.5
90.0 and under 92.5	4.7	2.8	3.8	4.0	.5	.5	6.1	3.5	5.4	6.0	3.2
92.5 and under 95.0	3.7	2.1	1.2	.2	.5	.1	1.2	------	3.5	8.3	3.4
95.0 and under 97.5	2.8	1.6	2.2	.8	.8	.8	1.2	.3	1.7	5.0	2.2
97.5 and under 102.5	3.3	3.6	1.2	1.4	.3	3.2	1.9	1.8	4.6	6.2	4.6
102.5 and under 107.5	2.7	2.1	1.2	.5	.7	1.0	1.8	4.3	1.7	5.8	2.7
107.5 and under 112.5	1.4	1.0	.5	.6	.2	.1	2.4	.5	.5	2.9	1.4
112.5 and under 117.5	.7	.3	.3	.3	.5	.1	.3	------	.3	1.6	.4
117.5 and over	3.2	1.6	1.1	.6	.8	.4	.5	.3	1.1	8.2	2.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of workers	13,579	8,108	4,708	1,465	1,091	1,464	1,479	396	2,099	4,202	4,783
Number of units	43	12	20	3	6	3	4	3	7	6	3
Average hourly earnings	$0.798	$0.783	$0.770	$0.777	$0.637	$0.687	$0.765	$0.695	$0.804	$0.891	$0.822
Average hourly earnings (including punitive overtime)	$0.820	$0.791	$0.809	$0.781	$0.688	$0.700	$0.771	$0.710	$0.811	$0.897	$0.828

[1] Northwest includes Montana, Nevada, Washington, Utah, Colorado, Idaho, California, Oregon. Southwest includes Arizona, New Mexico, Texas. South Central includes Arkansas, Oklahoma, Missouri, Tennessee. North Central includes Illinois, Ohio, Michigan, Indiana. East includes New Jersey, Pennsylvania, West Virginia, Maryland.
[2] Less than a tenth of 1 percent.

Well over half (57.2 percent) of all workers in smelters earned 67.5 but under 87.5 cents per hour. In the Northwest, almost four-fifths of the smelting workers received hourly earnings in this same range.

More than half (58.3 percent) of the smelting workers in the Southwest clustered in the 20-cent earning range of 50.0 but under 70.0 cents per hour. The major concentration of smelting workers in the South Central States, in the earnings range of 72.5 but under 92.5 cents per hour, encompassed 63.0 percent of the total. Over half (53.9 percent) of the North Central smelting workers earned 67.5 but under 87.5 cents per hour. Over two-fifths (43.6 percent) of the workers in nonferrous-metal smelters in the East earned 70.0 but under 90.0 cents per hour.

Slightly less than seven-tenths (69.3 percent) of the workers in the surveyed refineries earned 67.5 but under 87.5 cents per hour. In the Northwest and Southwest, 84.0 percent and 49.6 percent, respectively, of the refinery workers were found in this range. In eastern refineries, over seven-tenths (70.3 percent) of the workers earned 70.0 but under 90.0 cents per hour.

OCCUPATIONAL EARNINGS

Occupational earnings in zinc smelters ranged from a low of 61.9 cents per hour for laboratory helpers to a high of 121.6 cents for lead burners (table 7). The two large occupational groups of chargers and of yard and maintenance laborers (numbering 459 each) received 95.9 cents and 70.3 cents, respectively, as average hourly earnings. Two other large occupational groups, metal drawers and furnace men's helpers, earned an average of 93.8 cents and 81.0 cents, respectively, per hour. Chiselers, who cleaned the condensers used in the distillation of zinc, earned an average of 99.9 cents per hour. Among those workers concerned with the manufacture of the clay vessels used in the distillation of zinc, the mixing-machine operators earned an average of 79.0 cents per hour, retort and condenser makers earned 88.6 cents per hour, and pottery handlers earned 75.6 cents per hour.

The terminal averages in the range of occupational earnings in copper smelters were those of the motormen's and larrymen's helpers (55.7 cents) and the lead burners ($1.316). The latter group also received the highest average hourly earnings in zinc smelting. They are highly skilled men who maintain the lead lining of enclosures and tanks in good repair by sealing joints and seams.

TABLE 7.—*Hourly Earnings (Excluding Overtime), Weekly Hours, and Weekly Earnings of Workers in Zinc Smelting, by Occupation, August 1941*

Occupation	Workers	Average hourly earnings	Average weekly hours	Average total weekly earnings
All occupations	7,983	$0.835	39.6	$33.55
Apprentices, craft	51	.811	44.9	38.54
Bag-house men's helpers	89	.824	39.8	32.80
Bin men's helpers	16	.690	40.6	28.26
Blacksmiths	30	.925	44.3	42.92
Blacksmiths' helpers	23	.785	44.1	36.28
Blow-out men	90	.794	39.3	31.17
Brakemen, railroad	13	.788	43.0	35.29
Bricklayers	38	1.036	40.8	43.49
Bricklayers' helpers	28	.754	40.1	30.37
Bumpers	107	.908	37.8	34.42
Cadmium operators	28	.892	40.1	35.92
Carpenters	43	.939	43.5	42.54
Carpenters' helpers	18	.753	42.4	33.10
Casting-machine operators	33	.816	40.0	32.64
Cellar men	40	.803	38.0	30.62
Chambermen	31	.978	40.1	39.54
Chambermen's helpers	10	.859	39.8	34.54
Chargers	459	.959	36.8	34.29
Checkers	13	.754	40.0	30.17

TABLE 7.—*Hourly Earnings (Excluding Overtime), Weekly Hours, and Weekly Earnings of Workers in Zinc Smelting, by Occupation, August 1941*—Continued

Occupation	Workers	Average hourly earnings	Average weekly hours	Average total weekly earnings
Chemists and metallurgists	46	$0.902	40.7	$36.87
Chemists' assistants	22	.902	39.5	35.99
Chiselers (condenser cleaners)	139	.999	32.1	32.03
Clerical, other plant and office	46	.901	40.4	36.72
Clerical, plant	102	.917	40.3	37.26
Condenser setters	65	.912	35.5	32.76
Connie boys (condenser cleaner)	103	.872	33.6	29.42
Conveyor operators	56	.716	40.1	28.98
Cottrell operators	17	.914	40.2	36.85
Cranemen	84	.850	40.5	34.63
Crusher operators	16	.830	39.0	32.48
Drivers (team, truck, tractor)	49	.783	39.8	31.43
Dryer operators	18	.815	39.9	32.91
Electricians	68	.977	43.1	43.38
Electricians' helpers	17	.745	39.8	30.37
Engineers, powerhouse	24	.975	40.0	39.11
Engineers, railroad	22	.926	41.5	39.43
Fire and fuel men, powerhouse	33	.817	39.7	32.89
Firemen, machines and boilers	11	.805	40.9	33.34
Firemen, railroad	25	.802	40.5	33.41
Foremen and assistants, working	194	.964	43.0	42.77
Furnace operators (dross and byproducts)	142	.766	42.8	34.04
Furnace men, retort	228	.990	40.6	40.63
Furnace men's helpers	332	.810	39.5	32.03
Gas-producer operators	119	.914	39.5	36.17
Gas-producer operators' helpers	12	.910	38.0	34.57
Helpers, powerhouse	21	.925	40.2	37.43
Hookers, shoveler (furnace cleaning)	208	.840	37.5	31.56
Ironworkers	14	1.056	39.7	42.09
Janitors	25	.693	37.3	26.02
Kiln men	29	.759	38.6	29.30
Laborers, furnace	271	.749	35.9	26.95
Laborers, process	508	.720	39.7	28.93
Laborers, yard and maintenance	459	.703	38.4	27.10
Laboratory helpers	20	.619	38.6	23.93
Leacher operators	21	.856	44.6	39.91
Lead burners	25	1.216	46.8	61.49
Lead burners' helpers	16	.850	50.4	48.37
Loamers	139	.864	37.6	32.62
Machinists	46	.967	49.2	52.02
Machinists' helpers	42	.781	44.7	37.52
Maintenance and service helpers, not elsewhere classified	147	.733	40.8	30.76
Maintenance and service workers, not elsewhere classified	127	.896	47.6	46.01
Mechanics	117	.855	42.9	37.92
Mechanics' helpers	29	.786	39.9	31.39
Metal drawers	414	.938	36.9	34.79
Metal handlers and loaders	152	.878	39.2	34.46
Mill operators, crush and grind	53	.770	41.0	31.94
Mill operators' helpers	12	.751	35.5	26.66
Mixer (pug) mill operators	45	.802	38.6	31.03
Mixing-machine operators (pottery)	41	.790	38.8	31.19
Motormen, tram	96	.775	39.9	31.00
Oilers, plant	66	.786	38.9	30.87
Other smelter workers' helpers	228	.741	40.0	30.35
Other smelter workers, not elsewhere classified	163	.784	43.9	36.05
Painters	54	.694	38.8	27.09
Pipe fitters	33	.942	49.8	51.42
Pipe fitters' helpers	17	.775	47.8	42.82
Pottery handlers	90	.756	41.0	31.45
Pump men	10	.869	39.4	34.33
Pump men, acid	24	.936	39.7	37.55
Retort and condenser makers	38	.886	39.9	35.65
Roaster operators	131	.848	41.2	35.83
Roaster operators' helpers	76	.833	39.5	32.95
Samplers' helpers	21	.704	40.7	29.06
Screenmen, jigmen	51	.729	42.0	31.71
Screenmen, jigmen's helpers	11	.723	40.0	28.93
Sintering-machine operators	50	.854	39.9	34.38
Sintering-machine operators' helpers	47	.813	39.9	32.69
Stampers	110	.853	38.7	33.23
Stenographers	20	.747	40.0	29.94
Stuffers	91	.831	36.9	30.75
Tinsmiths	16	.964	40.2	38.90
Tinsmiths' helpers	24	.731	40.1	29.40
Truckers, hand	215	.769	39.1	30.15
Watchmen	74	.697	39.5	27.52
Weighers and samplers	69	.782	39.2	30.76
Welders	27	.950	41.5	40.22

Process laborers in copper smelters collect scrap prior to the charging of the furnaces and handle the disposal, in appropriate dumps, of slag from the furnaces. They formed the largest occupational group, numbering 525, in the surveyed copper smelters (table 8). Their average hourly earnings amounted to 65.2 cents.

TABLE 8.—*Hourly Earnings (Excluding Overtime), Weekly Hours, and Weekly Earnings of Workers in Copper Smelting, by Occupation, August 1941*

Occupation	Number of workers	Average hourly earnings	Average weekly hours	Average total weekly earnings
All occupations	4,366	$0.750	43.9	$34.70
Apprentices	18	.671	47.1	34.14
Blacksmiths	9	.858	47.1	46.76
Boilermakers	36	.829	45.1	39.55
Boilermakers' helpers	35	.735	40.1	30.73
Carpenters	69	.890	44.5	41.84
Casting-machine operators	15	.749	47.4	38.34
Clerical office workers	75	.827	40.6	33.92
Clerical plant workers	126	.952	41.6	40.56
Convertor-furnace operators	53	.815	46.3	40.18
Convertor-furnace punchers	118	.710	44.3	33.24
Conveyor operators	39	.640	43.1	28.69
Cottrell operators	28	.769	41.7	33.05
Cottrell operators' helpers	34	.773	45.4	37.17
Cranemen, overhead	93	.819	44.5	38.41
Cranemen, overhead helpers	36	.732	40.9	30.59
Dumpmen	22	.697	45.6	33.66
Electricians	57	.901	46.1	44.39
Engineers, railroad	25	.901	42.1	39.23
Firemen, powerhouse	44	.729	44.4	33.89
Flue dust men	42	.693	41.1	29.26
Foremen and assistants, working	110	.910	46.4	44.47
Furnace operators' helpers, all-around	212	.754	45.5	36.66
Janitors	41	.670	44.6	31.83
Laborers, furnace	96	.652	43.8	29.97
Laborers, maintenance	148	.627	41.2	27.24
Laborers, process	525	.652	42.9	29.44
Laborers, yard	254	.657	43.3	30.00
Lead burners	22	1.316	44.2	61.23
Lead burners' helpers	29	.720	41.3	31.49
Locomotive crane engineers	42	.836	47.4	42.83
Machinists	71	.901	44.8	42.55
Metal handlers	76	.676	46.1	33.53
Mill operators, crushing and grinding (ore and flux)	26	.788	44.9	37.34
Mill operators' helpers, crushing and grinding (ore and flux)	12	.664	43.3	30.07
Miscellaneous mill workers, not elsewhere classified	145	.827	40.6	33.92
Miscellaneous mill workers' helpers, not elsewhere classified	88	.722	44.0	33.23
Motormen and larrymen	76	.686	42.9	30.93
Motormen's and larrymen's helpers	28	.557	47.6	28.66
Ore handlers	43	.633	38.0	24.31
Other maintenance workers, not elsewhere classified	211	.884	44.4	41.56
Other maintenance workers' helpers, not elsewhere classified	178	.715	43.9	33.21
Powerhouse workers, not elsewhere classified	123	.812	45.8	39.40
Repairmen, plant equipment	72	.809	44.0	37.57
Repairmen, plant equipment, helpers	58	.746	46.3	37.06
Reverberatory furnace chargers	46	.673	46.6	33.69
Reverberatory furnace operators	43	.783	45.9	38.47
Reverberatory furnace tappers	56	.728	45.3	35.07
Roaster operators	68	.774	46.6	38.56
Samplers	164	.711	42.4	30.99
Screenmen	23	.700	41.9	30.76
Switchmen, railroad	38	.815	42.6	36.74
Technicians	46	.952	41.2	39.69
Technicians' assistants	21	.757	41.6	32.01
Track repairmen	73	.612	45.2	29.55
Transportation workers, not elsewhere classified	77	.783	46.1	38.54
Watchmen	51	.671	44.7	31.76

It will be noted that the helpers of Cottrell-treater operators (copper-smelting plants) received higher average hourly earnings (77.3 cents) than the operators themselves (76.9 cents). Cottrell treaters are devices to recover valuable metallic dusts from the gases thrown off by the furnaces. The helpers, unlike the operators, come into frequent contact with the metal powder deposited in the treaters

and are paid accordingly for their work which, although unskilled, is hazardous and disagreeable.

In the lead smelters covered by the Bureau's survey, plant clerical workers received the highest average hourly earnings ($1.023) among the various occupations (table 9). These employees are concerned with the routing of material through the plant and the maintenance of production, assay, and progress records; they should be distinguished from office clerical workers who are not directly involved in plant work. At the other end of the occupational scale in lead smelters, maintenance laborers received average hourly earnings of 64.8 cents.

TABLE 9.—*Hourly Earnings (Excluding Overtime), Weekly Hours, and Weekly Earnings of Workers in Lead Smelting, by Occupation, August 1941*

Occupation	Number of workers	Average hourly earnings	Average weekly hours	Average total weekly earnings
All occupations	1,095	$0.768	38.4	$30.52
Bag-house men	14	.798	40.3	32.26
Blast furnace chargers	12	.831	40.2	33.48
Blast furnace operators	16	.870	41.4	36.63
Blast furnace tappers	32	.793	40.4	32.23
Boilermakers	15	.891	39.3	35.20
Carpenters	23	.859	45.9	41.95
Casting-machine operators	10	.926	35.9	33.45
Clerical office workers	24	.944	38.7	36.49
Clerical plant workers	22	1.023	40.0	40.93
Conveyor operators	15	.741	38.4	28.47
Cranemen, overhead	17	.789	40.0	31.54
Foremen and assistants, working	25	.863	42.2	37.11
Janitors	17	.713	40.5	29.04
Laborers, furnace	31	.788	39.1	30.78
Laborers, process	68	.692	38.8	26.88
Laborers, yard	59	.660	39.5	26.08
Machinists	21	.839	39.7	35.11
Maintenance laborers	46	.648	37.7	24.46
Maintenance workers, not elsewhere classified	54	.804	40.0	32.34
Maintenance workers' helpers, not elsewhere classified	56	.729	40.7	30.21
Mill operators (ore and flux grinding)	16	.722	40.5	29.41
Motormen and larrymen	43	.746	39.1	29.28
Other furnace operators, not elsewhere classified	32	.749	40.1	30.03
Other furnace operators' helpers, not elsewhere classified	51	.733	39.6	29.05
Other plant workers, not elsewhere classified	103	.817	39.6	32.36
Other plant workers' helpers, not elsewhere classified	63	.701	37.6	26.42
Samplers	49	.722	38.5	27.81
Sinter (roaster) operators	21	.741	40.2	29.90
Switchmen, railroad	13	.767	38.3	30.61
Track repairmen, railroad	11	.654	40.5	26.72
Transportation workers, not elsewhere classified	26	.782	40.4	31.84
Truckers, hand (flux and calcine)	65	.803	37.3	29.96
Watchmen	15	.675	40.3	27.30
Weighers	10	.808	37.1	30.03

In the small group of mercury-smelter workers covered by the Bureau's survey, average hourly earnings varied between 52.4 cents for crusher operators and 73.7 cents for "other smelter workers," a miscellaneous category (table 10). Furnace men, who formed more than a third of this smelting force, earned an average of 59.1 cents per hour.

Of the 6,785 workers employed in electrolytic copper refineries, technicians received the highest average hourly earnings, $1.058 (table 11). The lowest average hourly earnings (59.2 cents) were received by track repairmen. The largest occupational group was composed of process laborers, who earned an average of 66.7 cents per hour.

TABLE 10.—*Hourly Earnings (Excluding Overtime), Weekly Hours, and Weekly Earnings of Workers in Mercury Smelting, by Occupation, August 1941*

Occupation	Workers	Average hourly earnings	Average weekly hours	Average total weekly earnings
Total, all occupations	135	$0.605	49.5	$32.89
Crusher operators	17	.524	48.1	27.45
Furnace men	55	.591	50.3	33.08
Furnace men's helpers	18	.574	47.1	29.76
Laborers	16	.546	49.4	29.66
Maintenance workers	10	.710	52.0	41.05
Other smelter workers	19	.737	49.7	38.60

TABLE 11.—*Hourly Earnings (Excluding Overtime), Weekly Hours, and Weekly Earnings of Workers in Electrolytic Copper Refining, by Occupation, August 1941*

Occupation	Workers	Average hourly earnings	Average weekly hours	Average total weekly earnings
All occupations	6,785	$0.779	40.2	$31.67
Air hoistmen	80	.774	39.7	31.02
Apprentices, trade or craft	37	.660	40.5	26.89
Blacksmiths	16	.957	41.7	40.69
Blacksmiths' helpers	27	.787	39.8	31.52
Boilermakers	21	.871	39.4	34.63
Boilermakers' helpers	45	.750	40.6	30.97
Brakemen, railroad	63	.758	39.9	30.58
Bricklayers	42	1.032	41.2	43.34
Bricklayers' helpers	19	.753	40.3	30.42
Carpenters	74	.939	40.2	38.02
Casting-machine operators	56	.846	41.6	35.89
Checkers	19	.739	38.4	28.73
Chippers, billets	57	.775	41.2	32.36
Circulation men, tanks	41	.795	39.9	31.72
Clay mixers	13	.741	40.0	29.65
Clerical, plant	151	.850	39.9	34.02
Concentrator operators	41	.796	39.8	31.72
Concentrator operators' helpers	16	.746	39.9	29.75
Cranemen	211	.810	41.0	33.67
Cranemen's helpers	156	.734	39.1	28.78
Electrolytic tank operators	14	.826	40.0	33.06
Electricians	96	.929	41.5	39.34
Engineers, powerhouse	29	1.024	40.6	41.90
Engineers, railroad	58	.835	41.8	35.69
Firemen, powerhouse	39	.795	40.5	32.75
Flappers	58	.618	41.2	26.08
Foremen, working	128	.953	41.0	39.68
Foremen, assistant, working	193	.850	41.3	35.63
Furnace chargers (reverberatory)	20	.893	40.0	35.77
Furnace operators, miscellaneous, not elsewhere classified	12	.754	41.2	31.54
Furnace operators' helpers, miscellaneous, not elsewhere classified	58	.784	39.7	31.19
Furnace operators, refining	28	.859	40.0	34.37
Furnace operators' helpers, refining	31	.820	39.9	32.72
Furnace operators (reverberatory and refiner)	83	.863	40.7	35.63
Furnace operators' helpers (reverberatory and refiner)	71	.758	39.3	29.96
Furnace skimmer (reverberatory)	42	.740	39.5	29.61
Furnace tapper (reverberatory)	40	.896	41.3	38.13
Hot-sheet men	226	.791	40.4	32.30
Inspectors (billets, wire, bars, etc.)	107	.768	39.7	30.52
Ironworkers	48	.962	40.2	38.90
Janitors	44	.685	39.7	27.25
Laborers, furnace	106	.639	38.7	24.74
Laborers, maintenance	250	.682	38.8	26.65
Laborers, process	628	.667	39.8	26.83
Laborers, samplers	29	.702	39.8	28.21

TABLE 11.—*Hourly Earnings (Excluding Overtime), Weekly Hours, and Weekly Earnings of Workers in Electrolytic Copper Refining, by Occupation, August 1941*—Continued

Occupation	Workers	Average hourly earnings	Average weekly hours	Average total weekly earnings
Laborers, yard	225	$0.690	40.2	$28.18
Ladlemen's helpers	28	.676	39.5	26.87
Leach operators	41	.820	40.2	33.07
Loaders and unloaders	125	.718	39.7	28.61
Loopers and punchers	42	.829	40.7	34.09
Machinists	93	.962	42.1	41.53
Machinists' helpers	32	.776	41.7	33.10
Maintenance workers, not elsewhere classified	167	.858	40.4	35.11
Maintenance workers' helpers, not elsewhere classified	67	.725	42.4	31.74
Mechanics	27	.846	42.6	37.21
Metal handlers (car loaders)	185	.716	39.0	27.99
Mill workers, miscellaneous, not elsewhere classified	217	.748	39.7	29.87
Mill workers' helpers, miscellaneous, not elsewhere classified	152	.764	40.3	30.96
Mold changers	51	.732	40.1	29.56
Mold coolers	15	.732	40.1	29.39
Mold fishers	32	.821	41.5	35.08
Mold painters, greasers, sprayers	61	.805	40.3	32.79
Motormen, trammers, larrymen	62	.730	40.8	30.09
Office workers, miscellaneous, not elsewhere classified	101	.852	39.4	33.63
Oilers and greasers	12	.720	37.7	27.17
Pipe fitters	33	.925	41.2	38.72
Pipe fitters' helpers	26	.758	39.0	29.73
Pourers and ladlemen	59	.866	39.9	34.60
Powerhouse workers, not elsewhere classified	60	.824	40.4	33.51
Pumpmen, tanks	36	.797	40.2	32.11
Rackers	47	.736	40.9	30.70
Repairmen, plant equipment	37	.854	42.3	37.19
Repairmen's helpers, plant equipment	71	.751	40.6	30.83
Repairmen, track	31	.592	42.7	26.01
Riggers	31	.913	41.5	39.17
Roaster operators (slime and sludge)	20	.804	40.0	32.16
Samplers	42	.777	39.6	31.89
Samplers' helpers	72	.742	39.7	29.51
Stenographers	43	.795	39.6	31.52
Storeroom men	14	.814	40.9	33.69
Strippers	76	.852	41.2	35.41
Switchboard operators, powerhouse	28	.884	40.9	36.45
Tank operators	33	.803	38.5	31.30
Technicians	32	1.058	39.7	42.02
Technicians' assistants	63	.691	39.7	27.61
Transportation workers, not elsewhere classified	30	.843	41.8	35.98
Transportation workers' helpers, not elsewhere classified	36	.725	42.8	32.07
Truck and tractor drivers	29	.800	41.5	33.78
Voltmeter men	79	.785	41.7	33.31
Washers and cleaners	133	.734	39.8	29.31
Watchmen	165	.741	39.5	29.36
Weighers	101	.810	41.4	34.18

It will be noted that in electrolytic copper refineries the average hourly earnings of miscellaneous furnace operators (75.4 cents) were lower than those of their helpers (78.4 cents). Differences in skill in these jobs are outweighed in the determination of earnings by the hazardous and disagreeable nature of the work.

In the electrolytic production of zinc, chemists received the highest average hourly earnings ($1.040) of any occupational group (table 12). Yard laborers received the lowest corresponding average, 69.8 cents. The two central occupational groups in the refining process, furnace operators and electrolytic tank operators, received average hourly earnings of 90.3 cents and 86.0 cents, respectively.

TABLE 12.—*Hourly Earnings (Excluding Overtime), Weekly Hours, and Weekly Earnings in the Electrolytic Production of Zinc,[1] by Occupation, August 1941*

Occupation	Number of workers	Average hourly earnings	Average weekly hours	Average total weekly earnings
All occupations	1,323	$0.809	37.9	$30.84
Carpenters	20	.874	38.5	33.77
Casters and pourers	65	.855	36.7	31.46
Chemists	19	1.040	40.0	41.61
Chemists' assistants	10	.745	37.6	28.32
Clerical office workers	13	.785	40.0	31.41
Clerical plant workers	20	.822	40.1	33.00
Electrolytic tank operators	11	.860	41.5	36.34
Furnace operators	71	.903	36.8	33.36
Furnace operators' helpers	98	.842	36.7	31.12
Janitors	13	.726	40.0	29.25
Laborers, not elsewhere classified	23	.708	34.2	24.22
Laborers, process	121	.721	38.0	27.42
Laborers, yard	51	.698	34.9	24.34
Machine repairmen	28	.876	39.6	35.16
Machine repairmen helpers	32	.736	39.8	29.39
Mill operators, not elsewhere classified	55	.807	39.5	32.28
Mill operators' helpers	33	.747	37.8	28.54
Ore and metal handlers	39	.737	37.8	27.89
Other workers, not elsewhere classified	329	.820	37.0	30.45
Powerhouse workers	13	.899	40.6	36.77
Repairmen, not elsewhere classified	59	.867	40.2	35.51
Repairmen's helpers, not elsewhere classified	36	.753	40.3	30.48
Samplers	10	.870	40.0	34.81
Screen and filter operators	22	.792	41.1	33.26
Store room and warehouse workers	12	.742	38.7	28.70
Strippers	84	.842	38.2	32.45
Truck drivers	10	.802	39.8	32.34
Watchmen	26	.724	38.6	28.38

[1] Includes 1 lead refinery.

Weekly Hours and Weekly Earnings

In the nonferrous-metal smelters, 58.5 percent of the labor force worked exactly 40 hours during the week of the Bureau's survey and an additional 25.1 percent worked 48 or more hours per week (table 13). Almost three-quarters (74.8 percent) of those employed in the nonferrous-metal refineries worked 40 hours weekly.

TABLE 13.—*Percentage Distribution of Workers in Nonferrous-Metal Smelting and Refining, by Weekly Hours Worked and by Region, August 1941*

Actual weekly hours	United States		Northwest		Southwest		North Central		South Central	East	
	Smelting	Refining	Smelting	Refining	Smelting	Refining	Smelting	Refining	Smelting	Smelting	Refining
Under 24	2.5	1.9	2.4	1.4	2.5	6.1	2.0	0.8	3.1	2.6	0.9
24 and under 32	3.2	1.2	1.7	.8	.9	3.3	1.1	1.0	2.6	6.4	.8
32 and under 36	4.1	3.2	2.6	2.9	1.9	5.8	6.5	3.0	7.3	3.8	2.5
36 and under 40	2.3	5.2	1.0	9.1	.7	2.5	5.3	.5	2.0	3.1	5.2
Exactly 40	58.5	74.8	45.9	79.6	6.7	62.3	73.4	65.7	67.5	76.7	77.9
Over 40 and under 44	2.6	5.0	.9	1.1	1.2	2.0	4.9	13.6	3.9	3.3	6.4
44 and under 48	1.7	1.5	1.4	.8	1.8	1.0	2.0	2.0	4.0	.7	1.8
Exactly 48	21.3	4.9	38.6	4.0	71.5	11.3	3.6	4.8	7.8	1.8	3.2
Over 48 and under 56	1.5	1.2	1.0	.....	6.8	2.1	1.1	3.5	.8	1.2	1.1
56 and over	2.3	1.1	4.5	.3	6.0	3.6	.1	5.1	1.0	.4	.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The largest concentration of smelting workers in each region, with the exception of the Southwest, worked 40 hours weekly. In south-

western smelters, over four-fifths (84.3 percent) of the labor force worked 48 or more hours weekly. In refineries a majority of the workers in each region (ranging from 62.3 to 77.9 percent of each regional group) worked 40 hours weekly.

Average total weekly earnings by branch of the industry varied remarkably little, the lowest average being $30.52 in lead smelting and the highest $34.70 in copper smelting (tables 7–12). Outstanding among the various occupational classes were the lead burners in zinc and copper smelters, whose high wage rates and long hours of work yielded averages in excess of $61.00 per week.

WAGE-RATE CHANGES IN UNITED STATES INDUSTRIES

THE following table gives information concerning wage-rate adjustments occurring during the month ending April 15, 1942, as shown by reports received from manufacturing and nonmanufacturing establishments which supply employment data to the Bureau of Labor Statistics.

As the Bureau's survey does not cover all establishments in an industry and furthermore, as some firms may have failed to report wage-rate changes, these figures should not be construed as representing the total number of wage changes occurring in manufacturing and nonmanufacturing industries.

Wage-Rate Changes Reported by Manufacturing and Nonmanufacturing Establishments During the Month Ending April 15, 1942 [1]

Group and industry	Establishments		Employees		Average percent of change in wage rates of employees having increases
	Total number covered	Number reporting increases	Total number covered	Number receiving increases	
All manufacturing	34,248	1,019	8,221,938	204,503	8.0
Durable goods	12,973	459	4,654,198	95,065	8.0
Nondurable goods	21,275	560	3,567,740	109,438	8.0
Iron and steel and their products, not including machinery	2,596	103	1,125,719	22,563	8.8
Blast furnaces, steel works, and rolling mills	350	11	596,170	7,044	8.4
Bolts, nuts, washers, and rivets	65	4	19,321	509	10.0
Forgings, iron and steel	101	8	25,133	891	8.0
Hardware	155	6	38,490	3,503	10.7
Plumbers' supplies	111	3	23,520	366	5.9
Stamped and enameled ware	258	12	47,693	848	6.0
Steam and hot-water heating apparatus and steam fittings	112	4	46,087	676	7.3
Stoves	244	15	34,244	1,616	8.0
Structural and ornamental metalwork	292	13	37,990	1,169	9.3
Tools (not including edge tools, machine tools, files, and saws)	126	3	18,748	602	7.7
Wirework	168	7	21,315	251	5.9
Screw-machine products	90	9	31,905	1,596	3.8
Machinery, not including transportation equipment	3,946	173	1,391,092	36,616	8.0
Agricultural implements (including tractors)	120	5	69,621	2,698	11.4
Electrical machinery, apparatus, and supplies	623	27	[2]	6,627	9.8
Engines, turbines, water wheels, and windmills	89	8	[2]	2,951	4.3
Foundry and machine-shop products	2,302	103	447,189	14,707	8.3
Machine tools	161	5	[2]	689	7.1
Radios and phonographs	72	4	58,089	5,643	4.8

See footnotes at end of table.

***Wage-Rate Changes Reported by Manufacturing and Nonmanufacturing Establishments During the Month Ending April 15, 1942*—Continued**

Group and industry	Establishments		Employees		Average percent of change in wage rates of employees having increases
	Total number covered	Number reporting increases	Total number covered	Number receiving increases	
Machinery, etc.—Continued.					
Machine-tool accessories	126	4	(2)	355	4.6
Pumps	104	7	36,748	1,442	9.6
Machinery, not elsewhere classified	38	3	5,386	104	10.5
Transportation equipment	909	25	1,276,218	9,577	7.5
Aircraft	148	7	(2)	5,173	8.1
Automobiles	374	7	285,557	633	9.9
Shipbuilding	269	6	(2)	1,065	6.7
Nonferrous metals and their products	1,128	33	277,636	5,448	10.1
Aluminum manufactures	52	3	(2)	347	13.7
Brass, bronze, and copper products	357	11	(2)	1,385	17.1
Lighting equipment	86	3	12,240	678	5.2
Sheet-metal work	147	6	9,580	182	11.6
Smelting and refining of scrap metal	35	3	4,598	608	10.2
Nonferrous metals and products, not elsewhere classified	61	4	16,152	1,372	6.0
Lumber and allied products	2,835	82	356,805	11,616	7.2
Furniture	748	15	109,189	1,326	8.4
Lumber:					
Millwork	556	16	35,980	3,073	7.9
Sawmills	729	33	141,505	5,934	6.4
Wooden boxes, other than cigar	149	7	15,101	792	8.1
Mattresses and bedsprings	200	3	12,244	29	9.7
Lumber and allied products, not elsewhere classified	171	3	18,629	91	9.4
Stone, clay, and glass products	1,559	43	226,728	9,245	6.9
Brick, tile, and terra cotta	506	13	43,212	1,855	6.9
Cement	136	6	23,964	1,015	9.3
Marble, granite, slate, and other products	232	8	5,259	502	8.3
Pottery	126	6	34,877	773	8.3
Textiles and their products	6,731	175	1,439,271	34,909	8.9
Fabrics	3,340	110	1,029,108	18,629	8.2
Cotton goods	821	14	464,188	3,689	5.4
Cotton smallwares	127	5	16,338	663	6.7
Dyeing and finishing textiles	218	13	60,223	2,938	9.9
Hosiery	511	25	106,383	4,268	9.3
Knitted outerwear	221	4	19,420	750	10.2
Silk and rayon goods	453	19	78,145	2,077	7.5
Woolen and worsted goods	416	17	162,829	2,804	8.0
Bags, other than paper	56	3	7,462	467	10.7
Cordage and twine	63	6	14,707	662	8.1
Wearing apparel	3,391	65	410,163	16,280	9.7
Clothing, men's	1,104	7	164,454	777	9.9
Clothing, women's	1,232	4	97,268	1,726	7.3
Men's furnishings	150	7	14,244	826	10.1
Shirts and collars	256	33	56,745	10,462	10.0
Textiles, not elsewhere classified	383	12	48,648	2,234	9.9
Leather and its manufactures	1,100	61	256,471	20,199	6.1
Boots and shoes	496	35	177,902	15,638	5.9
Leather	185	17	39,802	4,243	6.6
Boot and shoe cut stock and findings	127	7	10,743	282	6.9
Food and kindred products	5,208	121	479,827	9,558	10.7
Baking	1,020	11	81,563	343	9.1
Beverages	598	11	40,117	2,143	6.6
Butter	310	10	6,250	352	13.6
Canning and preserving	1,061	21	67,186	2,419	15.9
Confectionery	272	6	37,749	426	11.5
Flour	336	12	15,436	611	7.9
Ice cream	261	7	9,507	165	8.3
Sugar, beet	77	12	4,119	796	12.9
Condensed and evaporated milk	113	5	7,920	146	8.6
Feeds, prepared	112	3	4,814	156	13.3
Liquors, alcoholic	37	3	8,692	515	14.0
Food, not elsewhere classified	640	18	38,866	1,283	6.8
Tobacco manufactures	212	4	68,571	9,563	10.0
Cigars and cigarettes	173	4	58,030	9,563	10.0
Paper and printing	3,971	81	408,588	10,311	6.2
Boxes, paper	680	14	50,838	2,272	7.1
Paper and pulp	438	16	145,123	4,267	6.3
Printing and publishing:					
Book and job	1,489	20	77,552	1,267	6.0
Newspapers and periodicals	751	14	63,435	455	5.5

See footnotes at end of table.

Wage-Rate Changes Reported by Manufacturing and Nonmanufacturing Establishments During the Month Ending April 15, 1942—Continued

Group and industry	Establishments		Employees		Average percent of change in wage rates of employees having increases
	Total number covered	Number reporting increases	Total number covered	Number receiving increases	
Paper and printing—Continued.					
Envelopes	65	3	7,248	270	7.7
Bookbinding	110	4	12,937	165	7.4
Paper goods, not elsewhere classified	151	6	24,855	1,410	4.4
Chemical, petroleum, and coal products	2,340	81	440,236	17,909	7.1
Petroleum refining	184	5	74,537	824	9.1
Chemicals	257	22	87,651	9,368	5.8
Druggists' preparations	194	6	17,413	1,275	14.0
Explosives	53	4	[2]	1,001	9.0
Fertilizers	336	6	20,615	199	9.6
Paints and varnishes	496	19	25,120	2,381	6.7
Soap	92	4	16,922	1,163	9.4
Grease and tallow	27	3	790	67	10.0
Chemicals, not elsewhere classified	233	5	23,356	895	5.1
Rubber products	276	9	128,888	1,970	6.8
Rubber goods, other	224	8	49,847	970	7.3
Miscellaneous	1,437	28	345,888	5,019	7.5
Buttons	58	3	7,168	544	10.0
Miscellaneous industries, not elsewhere classified	644	16	63,569	3,186	7.1
Nonmanufacturing (except building construction)	[3] 90,100	807	[3] 3,091,100	15,413	6.8
Metalliferous mining	[3] 490	7	[3] 82,100	956	10.0
Quarrying and nonmetallic mining	[3] 1,090	18	[3] 39,600	563	8.2
Public utilities:					
Telephone and telegraph	[3] 9,580	574	[3] 337,700	7,611	4.7
Street railways and busses	[3] 350	6	[3] 136,900	1,223	8.4
Trade:					
Wholesale	[3] 14,660	48	[3] 348,100	949	12.6
Retail	[3] 50,200	601	[3] 1,040,800	4,329	6.3
Hotels (year-round)	[3] 1,900	9	[3] 141,300	245	14.0
Laundries	[3] 1,290	7	[3] 84,400	272	11.2
Dyeing and cleaning	[3] 850	6	[3] 18,600	235	9.0
Insurance	[3] 3,190	5	[3] 148,400	218	7.3

[1] Figures are not given for some industries to avoid disclosure of information concerning individual establishments. They are, however, included where practicable in "all manufacturing," and in the various industry groups. No decreases reported.
[2] Included in group totals but not available for publication separately.
[3] Approximate—based on previous month's sample.

ANNUAL WAGES AND SALARIES IN THE UNITED STATES, 1939

THERE was included for the first time in the Census of 1940 an inquiry as to the incomes of individual wage earners and salaried employees. The questions asked related to the amount of money wages or salaries received in 1939, and to any significant income (defined as $50 or more) received in forms other than money wages or salaries. The Bureau of the Census found that the median income from wages or salaries in 1939 was $967 for men, $540 for women, and $800 for members of both sexes combined.[1] The median, as for example, the $800 just mentioned, divides the total group of workers into two equal parts, one-half with incomes above the median and the other half with incomes below it. The number of workers (excluding those on public emergency work) receiving wage or salary income at different levels of income, and the percentage

[1] U. S. Department of Commerce. Bureau of the Census. Sixteenth Census of the United States, 1940. Series P–14, No. 1. Washington, 1942.

distributions, are shown in the accompanying table. The tabulations cover both sexes and the two sexes separately, and include figures for workers who had an additional income of $50 or more, for those who did not have as much additional income as $50, and for the two groups combined.

Income of Wage Earners and Salaried Workers (Except Those on Public Emergency Work), by Sex, in 1939 [1]

Level of wage or salary income in 1939	Wage or salary workers (except on public emergency work)						
	Total			Without other income [2]		With other income	
	Both sexes	Male	Female	Male	Female	Male	Female
	Number of workers						
Total workers	38,322,420	27,458,200	10,864,220	22,564,300	9,162,580	4,893,900	1,701,640
Number of workers reporting [3]	37,435,740	26,846,220	10,589,520	22,342,980	9,066,540	4,503,240	1,522,980
None	2,673,440	1,662,340	1,011,100	932,940	658,780	729,400	352,320
$1–$99	1,277,280	606,340	670,940	492,960	572,140	113,380	98,800
$100–$199	2,203,520	1,235,580	967,940	1,013,060	824,100	222,520	143,840
$200–$399	4,430,840	2,783,960	1,646,880	2,258,680	1,403,740	525,280	243,140
$400–$599	3,889,380	2,460,600	1,428,780	2,060,560	1,256,400	400,040	172,380
$600–$799	4,241,880	2,690,840	1,551,040	2,320,320	1,402,360	370,520	148,680
$800–$999	3,472,840	2,368,500	1,104,340	2,071,580	1,006,160	296,920	98,180
$1,000–$1,199	3,110,120	2,368,320	741,800	2,099,260	680,140	269,060	61,660
$1,200–$1,399	2,979,820	2,436,660	543,160	2,151,020	488,960	285,640	54,200
$1,400–$1,599	2,338,240	2,011,720	326,520	1,778,980	288,320	232,740	38,200
$1,600–$1,799	1,273,860	1,115,720	158,140	981,560	136,140	134,160	22,000
$1,800–$1,999	1,463,340	1,316,020	147,320	1,142,640	123,740	173,380	23,580
$2,000–$2,499	2,039,920	1,874,160	165,760	1,604,020	134,020	270,140	31,740
$2,500–$2,999	771,520	717,400	54,120	594,240	41,320	123,160	12,800
$3,000–$3,999	713,040	664,680	48,360	515,340	35,160	149,340	13,200
$4,000–$4,999	200,700	190,460	10,240	135,660	6,740	54,800	3,500
$5,000 and over	356,000	342,920	13,080	190,160	8,320	152,760	4,760
Median income	$800	$967	$540	$1,002	$571	$741	$337
	Percentage distribution						
Number of workers reporting	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None	7.1	6.2	9.5	4.2	7.3	16.2	23.1
$1–$99	3.4	2.3	6.3	2.2	6.3	2.5	6.5
$100–$199	5.9	4.6	9.1	4.5	9.1	4.9	9.4
$200–$399	11.8	10.4	15.6	10.1	15.5	11.7	16.0
$400–$599	10.4	9.2	13.5	9.2	13.9	8.9	11.3
$600–$799	11.3	10.0	14.6	10.4	15.5	8.2	9.8
$800–$999	9.3	8.8	10.4	9.3	11.1	6.6	6.4
$1,000–$1,199	8.3	8.8	7.0	9.4	7.5	6.0	4.0
$1,200–$1,399	8.0	9.1	5.1	9.6	5.4	6.3	3.6
$1,400–$1,599	6.2	7.5	3.1	8.0	3.2	5.2	2.5
$1,600–$1,799	3.4	4.2	1.5	4.4	1.5	3.0	1.4
$1,800–$1,999	3.9	4.9	1.4	5.1	1.4	3.9	1.5
$2,000–$2,499	5.4	7.0	1.6	7.2	1.5	6.0	2.1
$2,500–$2,999	2.1	2.7	.5	2.7	.5	2.7	.8
$3,000–$3,999	1.9	2.5	.5	2.3	.4	3.3	.9
$4,000–$4,999	.5	.7	.1	.6	.1	1.2	.2
$5,000 and over	1.0	1.3	.1	.9	.1	3.4	.3

[1] For source see footnote 1 in text. The statistics of the table are based upon a tabulation of a 5-percent cross-section of the population multiplied uniformly by 20.
[2] Without other income or with nonwage income of less than $50.
[3] The difference between the total number of workers and the number reporting is explained by the fact that a few of the 5-percent sample did not report income.

About one-sixth of the wage earners and salaried workers combined received nonwage incomes of $50 or more, and the remaining five-sixths did not receive as much as $50 either in cash or in kind in any

form other than money wages or salaries. It was found that the median income of the second group of workers, numbering 31,727,000, was $833, whereas that of the first group, numbering 6,596,000 workers, who had additional income of $50 or more, was only $605. This is explained in part by the fact that nonwage income was received by a comparatively large proportion of persons in the lower levels of income. It is pointed out by the Bureau of the Census that 40.4 percent of the workers who received nonwage income obtained less than $400 as wages or salaries, as contrasted with only 26.0 percent of the workers who did not receive as much as $50 of income other than wages and salaries. The nonwage income of persons at the lower end of the scale consisted mainly of direct relief and income in kind, such as food, clothing, and lodging.

The median income of women was hardly more than half as large as that of men. The differences were particularly pronounced at the lower and upper ends of the income scale. The figures cannot be used as indications of the differences in pay scales for men and women doing the same work, for all workers are included without any distinction as to the relative numbers of men and women in different occupations or the relative amount of time worked during the year.

It will be noted that 2,673,000 workers were reported as receiving no money wage or salary in 1939. It is stated by the Bureau of the Census that about two-fifths of those who reported no wage or salary income received other income, and thus may have received all their income in kind, or may have shifted from self-employment in 1939 to work for wages in March 1940, when employment status for census purposes was determined. Some of the group that received no wage or salary income for 1939 were unemployed in that year or were outside the labor force. In some cases the income or class-of-worker designation was reported incorrectly.

The figures of the accompanying table are based upon a tabulation of a 5-percent cross-section multiplied uniformly by 20. It is pointed out by the Bureau of the Census that an exact agreement is not to be expected between these sample tabulations and the tabulations of the complete returns. It is announced that later releases and bulletins will give additional classifications and details, regional as well as national, by industry, occupation, color, age, employment status. and social-security status.

CHANGES IN LIVING COSTS IN LARGE CITIES, MAY 15 AND JUNE 2, 1942

AFTER 19 months of increase, the cost of living in large cities on June 2 was slightly lower than on May 15. This is the first time that the index of the cost of living has shown any decrease since November 1940. The stabilization of the index in this period represents in large part a balance between increases in the prices of certain foods which are not subject to control and decreases in prices of controlled foods, clothing, housefurnishings, and rents in some areas. There was a net advance of 0.8 percent in total living costs between mid-April and mid-May, but a drop of 0.1 percent between mid-May and the beginning of June.

Average living costs of wage earners and lower-salaried workers in large cities were 10.8 percent higher on June 2, 1942, than on June 15, 1941, and 15.9 percent higher than the average for the 5 years 1935-39. The net advance from the outbreak of the war in Europe to June 2, 1942, was 17½ percent.

The special survey upon which the figures for June 2 are based was made by the Bureau of Labor Statistics in order to ascertain the immediate effect of the General Maximum Price Regulation, which became applicable in retail trade on May 18. The order provided that prices of most of the goods purchased by moderate-income families be reduced to the highest level that prevailed in March.

Clothing and housefurnishings.—Clothing prices reached a peak during April, and by June 2 had declined 0.8 percent below the average April 15 level. June 2 costs remained almost 2 percent above those on March 15, but the reports available do not indicate how far prices rose in the latter part of March.

All articles of clothing are covered by the maximum price regulation effective May 18, which required the return of prices to the highest level prevailing in March. In many cases, retailers brought their prices to ceiling levels even before the regulations became effective. Between April 15 and May 15, a drop in clothing costs was shown in 13 of the 21 cities surveyed and between May 15 and June 2, decreases were reported from 17 of these cities.

Largest declines in clothing occurred in prices of shoes, underwear, overalls and other work clothes, and men's shirts, which returned to a point midway between the March 15 and April 15 levels. Percale dresses, however, had not returned to the levels prevailing in mid-March and mid-April. Dry-cleaning and shoe-repair prices, which were not covered by the price ceiling order until July 1, continued to rise.

Housefurnishings, like clothing, had risen rapidly in price during the winter and early spring. All housefurnishings are now subject to

control, and in 18 of the 21 cities surveyed, costs declined from April 15 to June 2. The decline averaged 0.4 percent over the period. Largest declines occurred in prices of bed sheets, mattresses, and bedroom furniture. The index for housefurnishings was slightly lower on June 2 than on March 15.

Rents.—Sharp declines in rent, required in a few large cities by the Office of Price Administration, caused the average for large cities in the United States to decline 1.2 percent between May 15 and June 2. This drop brought the average for large cities in the United States to a level 0.6 percent below that of mid-April.

The cities in which the largest reductions occurred on June 1 were Birmingham with a drop of 8.9 percent; Cleveland 7.0 percent; Detroit 6.3 percent; and Seattle 3.0 percent. For each of these cities, the Office of Price Administration's rent ceilings went into effect on June 1. In Birmingham, Detroit, and Seattle, it was ordered that rents be reduced to their levels of April 1, 1941; in Cleveland to July 1, 1941. Changes in other cities in this period were not large.

From April 15 to May 15, rents increased on the average by 0.5 percent. In most cities, the changes were small. In Chicago, where many leases expire May 1, there was a 3.0-percent increase.

Miscellaneous goods and services.—On the average, miscellaneous costs remained stationary in the latter half of May. In a few cities, however, there were increases in the price of gasoline and in charges for laundry services.

Between mid-April and mid-May, the cost of miscellaneous goods and services continued to rise in most cities, owing in part to further increases in used-automobile prices and in charges for laundry services. Newspaper prices were increased in several cities. On the average, the advance during the month was 0.4 percent.

On May 18, the commodities included in this group became subject to the maximum price regulation. Laundry services and automobile repairs will come under the regulation as of July 1, but personal services, such as beauty-shop and barber-shop services, medical and dental care, and domestic services, utility rates, including charges for telephone and public transportation, newspapers, motion-picture admissions, and insurance rates, are all specifically exempted from the maximum price regulation.

Food.—Between April 15 and May 15, the food costs of wage earners and lower-salaried workers rose by 1.7 percent. Between May 15 and June 2, there was a further advance of 0.3 percent. The latter increase was due primarily to higher prices for fresh fruits and vegetables, lamb, and poultry, which are exempt from control. (Most fresh fruits and some vegetables usually advance at this time of year). Prices of most meats and packaged foods dropped substantially. Although these declines were not enough to offset the advances on the average for the 21 cities combined, a net drop in food costs occurred in the 2 weeks following the effective date of the price order in about half of the cities surveyed.

The maximum price regulation, which was effective May 18, applies to about 60 percent of the food bill of the moderate-income city family. Section 3 of the Emergency Price Control Act passed by Congress on January 29, 1942, provides that prices of agricultural commodities shall not be fixed until their value in exchange to the farmer shall be at

least 10 percent higher than their average value in the years 1909 to 1914, that is until they have reached 110 percent of what is known as their "parity price." Because of this limitation, no price ceilings are being placed at present on butter, cheese, eggs, poultry, mutton and lamb, evaporated and condensed milk, flour, loose corn meal, citrus-fruit juices, dried prunes, and dried beans. Fresh fruits and vegetables (except bananas) and fresh fish and sea food are also exempt from the price order, because of the serious administrative difficulties which would be involved in regulating prices of foods which vary so greatly from season to season in quantity and character.

Fuel, electricity, and ice.—Between April 15 and May 15, the price of coal rose in most of the cities in which it is in general domestic use, with a few exceptions such as New York and Mobile. From May 15 to June 2, there were still further increases. The price of bituminous coal is subject not to the General Maximum Price Regulation, but to a special price ceiling issued on the same date, which sets specific ceiling prices for the different grades and sizes in each producing area. These coal ceilings are not tied to the maximum March levels.

Fuel-oil prices, which are under the general regulation, remained stable in the latter half of May, following an increase between April 15 and May 15 in cities on the northeastern seaboard.

Rates for gas and electricity, which are not subject to control by the Office of Price Administration, remained generally stable throughout the period, except for increases in the cost of gas in San Francisco and Cincinnati, a decrease in gas rates in New York, and a reduction in charges for electricity in Houston.

TABLE 1.—*Percent of Change From May 15 to June 2, 1942, in Cost of Goods Purchased by Wage Earners and Lower-Salaried Workers, by Groups of Items* [a]

Area and city	All items	Food	Clothing	Rent	Fuel, electricity, and ice	House-furnishings	Miscellaneous
Average: Large cities	−0.1	+0.3	−0.5	−1.2	+0.1	−0.3	(1)
New England: Boston	−.3	−.6	−.6	(1)	−.2	−.1	−0.1
Middle Atlantic:							
Buffalo	−.4	−.1	−.8	−1.3	+.7	−.8	−.1
New York	+.5	+1.4	−.3	(1)	−.2	(1)	+.1
Philadelphia	+.2	+.4	−.2	(1)	(1)	−.5	(1)
Pittsburgh	+.3	+1.0	−.4	−.1	(1)	−1.2	+.1
East North Central:							
Chicago	(1)	+.3	−1.5	(1)	+.6	−.6	+.1
Cincinnati	−.1	−.7	−.3	+.1	+2.4	+.2	+.2
Cleveland	−1.3	+.1	−.4	−7.0	+.4	−.3	−.4
Detroit	−1.3	+.2	−.3	−6.3	+.1	−.2	−.4
West North Central:							
Kansas City	−.3	−.9	+.2	−.7	+.2	−.8	(1)
Minneapolis	−.2	−.4	−.7	−.1	−.1	(1)	−.1
St. Louis	(1)	+.2	−.5	+.4	(1)	−.1	(1)
South Atlantic:							
Baltimore	+.3	+.9	+.1	−.1	+.1	(1)	+.2
Savannah	−.7	−1.4	−1.4	(1)	(1)	−.1	−.1
Washington, D. C.	+.1	+.2	(1)	(1)	(1)	+.4	−.1
East South Central: Birmingham	−1.4	+.2	(1)	−8.9	+.6	−.2	−.5
West South Central: Houston	−.5	−1.2	−.6	(1)	−.3	(1)	−.2
Mountain: Denver	+.1	+.4	−.6	(1)	+.2	−.2	(1)
Pacific:							
Los Angeles	−.1	−.2	−.5	(1)	(1)	(1)	(1)
San Francisco	−.2	−.2	−.4	(1)	−.1	−.3	−.1
Seattle	−.7	−.6	−.2	−3.0	−.1	(1)	−.3

[a] Based on data for 21 cities.

[1] No change.

TABLE 2.—*Percent of Change From April 15 to May 15, 1942, in Cost of Goods Purchased by Wage Earners and Lower-Salaried Workers, by Groups of Items*

Area and city	All items	Food	Clothing	Rent	Fuel, electricity, and ice	House-furnishings	Miscellaneous
Average: Large cities	+0.8	[1] +1.7	[2] −0.3	[3] +0.5	[3] +0.5	[2] −0.1	[2] +0.4
New England: Boston	+1.2	+2.6	+.5	+.1	+.7	−.3	+.5
Middle Atlantic:							
Buffalo	+1.3	+2.3	+.6	+1.4	+.4	[4]	+.5
New York	+.4	+1.2	+.1	[4]	−.1	−.1	+.1
Philadelphia	+.8	+1.6	−.5	−.1	+1.6	+.2	+.5
Pittsburgh	+1.6	+3.1	+.2	+1.6	+.1	−.1	+.5
East North Central:							
Chicago	+1.0	+1.4	−.8	+3.0	+.4	−.1	+.1
Cincinnati	+.5	+1.4	−.6	+.4	+.6	−.3	+.1
Cleveland	+.9	+1.5	+.2	+.3	+.2	+.1	+1.3
Detroit	+.3	+1.0	−.8	[4]	+.2	−.5	+.1
West North Central:							
Kansas City	+1.0	+1.4	−1.3	+.3	[4]	−.1	+2.2
Minneapolis	[5] +1.0	+2.5	[5] +.2	+.2	+.1	−.4	[5] +1.0
St. Louis	+.2	[4]	−.1	+.8	+.6	−.3	+.2
South Atlantic:							
Baltimore	+.7	+1.8	−.5	[4]	+1.0	+.3	+.1
Savannah	+.6	+1.3	+.2	+.3	[4]	[4]	+.2
Washington, D. C	[6] +.8	+2.5	[6] −.5	[4]	+1.4	−.4	+.4
East South Central: Birmingham	+.3	+1.3	−.9	[4]	+.5	+.1	+.1
West South Central: Houston	+.4	+1.0	+.2	+.1	[4]	[4]	+.2
Mountain: Denver	+.9	+2.2	−.7	[4]	[4]	−.4	+.5
Pacific:							
Los Angeles	+.8	+2.1	−.1	+.1	[4]	−.3	+.2
San Francisco	+.5	+1.5	−1.8	+.5	+.8	−.4	+.4
Seattle	+.7	+1.9	−.2	[4]	[4]	−.2	+.3

[1] Based on data for 51 cities.
[2] Based on data for 21 cities.
[3] Based on data for 34 cities.
[4] No change.
[5] Indexes for April revised: All items 114.7; clothing 125.5; miscellaneous 113.6.
[6] Indexes for April revised: All items 113.8; clothing 133.1.

TABLE 3.—*Indexes of Cost of Goods Purchased by Wage Earners and Lower-Salaried Workers, by Groups of Items, June 2, 1942*

[Average 1935–39 = 100]

Area and city	All items	Food	Clothing	Rent	Fuel, electricity, and ice	House-furnishings	Miscellaneous
Average: Large cities	115.9	122.0	[1] 125.9	[1] 108.4	[1] 104.8	[1] 121.1	[1] 111.0
New England: Boston	113.1	117.6	122.9	104.6	112.5	118.5	108.2
Middle Atlantic:							
Buffalo	119.8	125.1	128.9	116.4	104.2	124.9	115.7
New York	113.8	119.7	126.4	103.2	103.3	117.2	109.9
Philadelphia	114.9	119.9	125.6	106.7	103.5	120.9	110.5
Pittsburgh	116.0	122.6	126.2	108.7	106.9	120.8	109.9
East North Central:							
Chicago	116.6	122.1	121.7	116.2	103.7	120.5	110.5
Cincinnati	115.9	121.5	127.7	104.9	106.2	125.4	110.5
Cleveland	117.5	124.2	127.1	110.0	111.9	123.6	110.8
Detroit	117.2	122.5	125.9	112.0	106.7	120.6	113.0
West North Central:							
Kansas City	114.5	117.7	123.8	108.5	105.8	117.6	112.7
Minneapolis	115.7	120.4	124.8	109.5	98.5	123.8	114.6
St. Louis	115.7	124.0	127.0	107.9	105.9	116.1	109.0
South Atlantic:							
Baltimore	118.5	126.9	126.7	113.5	103.8	127.0	109.7
Savannah	120.1	128.5	127.2	116.3	106.2	119.8	112.7
Washington, D. C	114.8	121.3	132.4	100.6	102.3	129.0	112.4
East South Central: Birmingham	116.7	120.7	127.1	119.4	99.6	119.1	110.3
West South Central: Houston	115.6	124.4	127.1	108.7	93.5	122.6	109.4
Mountain: Denver	115.8	123.4	124.2	109.0	99.5	122.0	110.8
Pacific:							
Los Angeles	117.8	127.5	127.6	110.0	94.2	118.6	111.7
San Francisco	117.5	125.3	125.8	106.7	93.8	119.4	114.6
Seattle	120.4	129.1	129.7	119.1	100.7	119.5	113.2

[1] Based on data for 21 cities.

TABLE 4.—*Indexes of Cost of Goods Purchased by Wage Earners and Lower-Salaried Workers, by Groups of Items, May 15, 1942*

[Average 1935–39=100]

Area and city	All items	Food	Clothing	Rent	Fuel, electricity, and ice	Housefurnishings	Miscellaneous
Average: Large cities	116.0	[1] 121.6	[2] 126.5	[2] 109.7	[3] 104.7	[2] 121.5	[2] 111.0
New England: Boston	113.4	118.3	123.6	104.6	112.7	118.6	108.3
Middle Atlantic:							
Buffalo	120.3	125.2	130.0	117.9	103.5	125.9	115.8
New York	113.2	118.0	126.8	103.2	103.5	117.2	109.8
Philadelphia	114.7	119.4	125.8	106.7	103.5	121.5	110.5
Pittsburgh	115.7	121.4	126.7	108.8	106.9	122.3	109.8
East North Central:							
Chicago	116.6	121.7	123.6	116.2	103.1	121.2	110.4
Cincinnati	116.0	122.4	128.1	104.8	103.7	125.2	110.3
Cleveland	119.0	124.1	127.6	118.3	111.5	124.0	111.3
Detroit	118.7	122.2	126.3	119.5	106.6	120.8	113.4
West North Central:							
Kansas City	114.9	118.8	123.6	109.3	105.6	118.5	112.7
Minneapolis	115.9	120.9	125.7	109.6	98.6	123.8	114.7
St. Louis	115.7	123.8	127.7	107.5	105.9	116.2	109.0
South Atlantic:							
Baltimore	118.1	125.8	126.6	113.6	103.7	127.0	109.5
Savannah	120.9	130.3	129.0	116.3	106.2	119.9	112.8
Washington, D. C	114.7	121.0	132.4	100.6	102.3	128.5	112.5
East South Central: Birmingham	118.4	120.5	127.1	131.0	99.0	119.3	110.8
West South Central: Houston	116.2	125.9	127.9	108.7	93.8	122.6	109.6
Mountain: Denver	115.7	122.9	124.9	109.0	99.3	122.2	110.8
Pacific:							
Los Angeles	117.9	127.8	128.3	110.0	94.2	118.6	111.7
San Francisco	117.7	125.5	126.3	106.7	93.9	119.8	114.7
Seattle	121.3	129.9	130.0	122.8	100.8	119.5	113.5

[1] Based on data for 51 cities.
[2] Based on data for 21 cities.
[3] Based on data for 34 cities.

TABLE 5.—*Indexes of Cost of Goods Purchased by Wage Earners and Lower-Salaried Workers in Large Cities, by Years, 1935–41, and by Months, January 1941–May 1942*

[Average 1935–39=100]

Year	All items	Food	Clothing	Rent	Fuel, electricity, and ice	Housefurnishings	Miscellaneous
1935	98.1	100.4	96.8	94.2	100.7	94.8	98.1
1936	99.1	101.3	97.6	96.4	100.2	96.3	98.7
1937	102.7	105.3	102.8	100.9	100.2	104.3	101.0
1938	100.8	97.8	102.2	104.1	99.9	103.3	101.5
1939	99.4	95.2	100.5	104.3	99.0	101.3	100.7
1940	100.2	96.6	101.7	104.6	99.7	100.5	101.1
1941	105.2	105.5	106.5	105.9	102.5	108.2	104.0
Jan. 15	100.8	97.8	100.7	105.0	100.8	100.1	101.9
Feb. 15	100.8	97.9	100.4	105.1	100.6	100.4	101.9
Mar. 15	101.2	98.4	102.1	105.1	100.7	101.6	101.9
Apr. 15	102.2	100.6	102.4	105.4	101.0	102.4	102.2
May 15	102.9	102.1	102.8	105.7	101.1	103.2	102.5
June 15	104.6	105.9	103.3	105.8	101.4	105.3	103.3
July 15	105.3	106.7	104.8	106.1	102.3	107.4	103.7
Aug. 15	106.2	108.0	106.9	106.3	103.2	108.9	104.0
Sept. 15	108.1	110.7	110.8	106.8	103.7	112.0	105.0
Oct. 15	109.3	111.6	112.6	107.5	104.0	114.4	106.9
Nov. 15	110.2	113.1	113.8	107.8	104.0	115.6	107.4
Dec. 15	110.5	113.1	114.8	108.2	104.1	116.8	107.7
1942:							
Jan. 15	112.0	116.2	116.1	108.4	104.3	118.2	108.5
Feb. 15	112.9	116.8	119.0	108.6	104.4	119.7	109.4
Mar. 15	114.3	118.6	123.6	108.9	104.5	121.2	110.1
Apr. 15	115.1	119.6	126.9	109.1	104.2	121.6	110.6
May 15	116.0	121.6	126.5	109.7	104.7	121.5	111.0

Labor Turn-Over

LABOR TURN-OVER IN MANUFACTURING, APRIL 1942

LABOR turn-over reports from approximately 8,900 manufacturing establishments with more than 4,400,000 workers continued to show substantial numbers of workers quitting their jobs. The quit rate of 3.59 per 100 in April for all manufacturing industries combined exceeded all previous rates. The prevailing opportunity to shift to jobs paying higher wages, together with housing shortages and transportation difficulties, were primary factors contributing to the excessive number of quits in recent months. The April quit rates in the shipbuilding industry (4.39) and in the aircraft industry (3.79) were higher than the total manufacturing average (3.59). In March 1942 the quit rate for all manufacturing was 3.02, and in April of last year, it was 2.08.

Lay-offs in April averaged 1.31 per 100 for all manufacturing, reflecting curtailments of peacetime production, shortages of material, and conversion to war production. With the exception of the immediately preceding month, the April lay-off rate was lower than that reported in any month since September 1941. The rate in March 1942 and also in April 1941 was 1.19. In automobile and body plants the lay-off rate fell from 5.87 in March to 3.18 in April, and in automobile parts and equipment plants from 2.09 to 1.70. Among industries showing increases over March in the lay-off rate were stoves, lighting equipment, furniture, dyeing and finishing textiles, foundries and machine shops, hardware, planing mills, radios and phonographs, and paints and varnishes.

The expansion in the hiring of wage earners, particularly in industries geared to war production, continued in April. For all manufacturing industries combined the average accession rate in April was 7.12 per 100 workers as compared with 6.99 in March and 6.04 in April of last year.

In table 1 are given the monthly turn-over rates for 135 manufacturing industries combined from January 1941 to April 1942, inclusive. Table 2 gives the rates for each of 42 manufacturing industries for March and April 1942 and April 1941. Table 3 gives only the quit rates for each of 7 selected war industries for which the publication of turn-over data has been restricted for military reasons.

467211—42——11

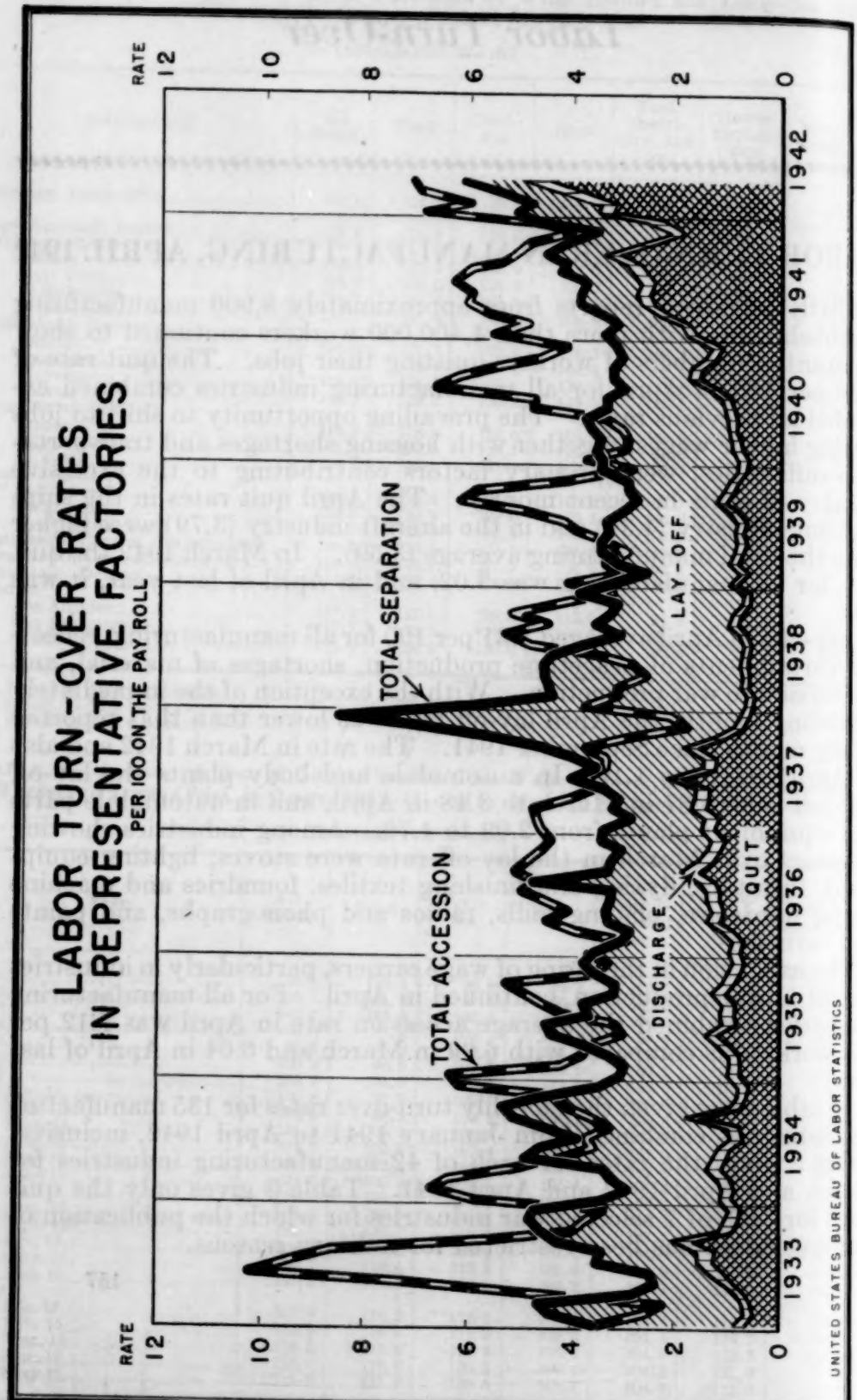

LABOR TURN-OVER RATES
IN REPRESENTATIVE FACTORIES
PER 100 ON THE PAY ROLL
RATE
12
10
8
6
4
2
0
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
TOTAL SEPARATION
TOTAL ACCESSION
LAY-OFF
DISCHARGE
QUIT
UNITED STATES BUREAU OF LABOR STATISTICS

TABLE 1.—*Monthly Labor Turn-Over Rates of Factory Workers in Representative Establishments in 135 Industries* [1]

Class of turn-over and year	January	February	March	April	May	June	July	August	September	October	November	December	Average
Separations:													
Quits—													
1942	2.36	2.41	3.02	3.59									
1941	1.31	1.33	1.70	2.08	2.20	2.06	2.25	2.46	2.81	2.11	1.57	1.75	1.97
Discharges—													
1942	.30	.29	.33	.35									
1941	.18	.19	.21	.25	.24	.26	.29	.30	.31	.28	.24	.29	.25
Lay-offs [2]													
1942	1.61	[4] 1.39	1.19	1.31									
1941	1.61	1.20	1.06	1.19	1.08	1.03	1.40	1.13	1.15	1.41	1.44	2.15	1.32
Miscellaneous separations— [3]													
1942	.83	.73	.82	.87									
1941	.31	.43	.43	.37	.34	.36	.30	.25	.25	.33	.26	.52	.35
Total—													
1942	5.10	[4] 4.82	5.36	6.12									
1941	3.41	3.15	3.40	3.89	3.86	3.71	4.24	4.14	4.53	4.13	3.51	4.71	3.89
Accessions:													
Rehiring—													
1942	1.41	[4] 1.03	1.18	1.11									
1941	1.45	1.08	1.24	1.04	.92	.90	1.04	1.11	.87	.86	.79	.94	1.02
New hiring—													
1942	5.46	4.99	5.81	6.01									
1941	4.09	3.84	4.38	5.00	5.03	5.41	4.96	4.32	4.29	4.01	3.12	3.82	4.36
Total—													
1942	6.87	[4] 6.02	6.99	7.12									
1941	5.54	4.92	5.62	6.04	5.95	6.31	6.00	5.43	5.16	4.87	3.91	4.76	5.38

[1] The various turn-over rates represent the number of quits, discharges, lay-offs, total separations, and accessions per 100 employees. It should be noted that turn-over rates are not directly comparable to the "employment and pay-roll" reports issued by the Bureau of Labor Statistics. Turn-over rates are based on data for the entire month, while employment and pay-roll indexes refer only to the pay period ending nearest the middle of the month. Certain seasonal industries, such as canning and preserving, are not covered by the labor turn-over survey. Finally, the coverage of the labor turn-over sample is not so extensive as that of the employment sample, which includes a greater number of small plants.
[2] Including temporary, indeterminate, and permanent lay-offs.
[3] Military separations included.
[4] Revised.

TABLE 2.—*Monthly Turn-Over Rates (per 100 Employees) in 42 Manufacturing Industries, April 1942* [1]

Industry	Date	Separation rates					Accession rates		
		Quit	Discharge	Lay-off	Miscellaneous separation [2]	Total separation	Rehiring	New hiring	Total accession
Agricultural implements	Apr. 1942	2.37	0.26	0.61	1.26	4.50	0.65	4.04	4.69
	Mar. 1942	3.02	.47	1.35	.92	5.76	1.19	5.63	6.82
	Apr. 1941	1.72	.17	.61	.59	3.09	.76	2.38	3.14
Automobiles and bodies	Apr. 1942	1.84	.16	3.18	.95	6.13	3.02	4.56	7.58
	Mar. 1942	2.21	.28	5.87	1.41	9.77	4.42	4.52	8.94
	Apr. 1941	1.99	.19	1.77	.54	4.49	2.46	3.71	6.17
Automobile parts and equipment	Apr. 1942	2.72	.55	1.70	.92	5.89	.92	6.87	7.79
	Mar. 1942	2.50	.42	2.09	.81	5.82	.93	7.61	8.54
	Apr. 1941	2.10	.35	2.48	.63	5.56	.84	5.36	6.20
Boots and shoes	Apr. 1942	3.13	.26	.99	.63	5.01	.80	3.88	4.68
	Mar. 1942	2.54	.27	.46	.54	3.81	.92	3.41	4.33
	Apr. 1941	1.73	.11	1.47	.41	3.72	.65	2.47	3.12
Boxes, paper	Apr. 1942	4.11	.33	1.33	.73	6.50	.91	4.49	5.40
	Mar. 1942	3.35	.31	1.68	.65	5.99	.63	3.84	4.47
	Apr. 1941	2.20	.55	.90	.38	4.03	1.97	6.03	8.00
Brick, tile, and terra cotta	Apr. 1942	4.10	.30	1.07	.45	5.92	1.67	6.08	7.75
	Mar. 1942	3.69	.40	2.23	.52	6.84	2.45	5.11	7.56
	Apr. 1941	2.19	.42	.87	.37	3.85	5.00	7.17	12.17
Cast-iron pipe	Apr. 1942	1.61	.29	.61	.39	2.90	.35	2.48	2.83
	Mar. 1942	1.84	.30	1.02	.45	3.61	.92	3.74	4.66
	Apr. 1941	1.00	.21	.07	.25	1.53	1.13	2.65	3.78
Cement	Apr. 1942	2.37	.16	.16	.73	3.42	1.85	4.33	6.18
	Mar. 1942	2.06	.18	.68	.63	3.55	2.30	3.52	5.82
	Apr. 1941	.83	.13	.37	.47	1.80	3.76	4.64	8.40

[1] No individual industry data shown unless reports cover at least 25 percent of industrial employment.
[2] Military separations included.

TABLE 2.—*Monthly Turn-Over Rates (per 100 Employees) in 42 Manufacturing Industries, April 1942*—Continued

Industry	Date	Separation rates					Accession rates		
		Quit	Discharge	Layoff	Miscellaneous separation [1]	Total separation	Rehiring	New hiring	Total accession
Chemicals	Apr. 1942	3.07	0.44	0.70	0.89	5.10	0.46	5.28	5.74
	Mar. 1942	2.28	.43	.67	.80	4.18	.46	5.70	6.16
	Apr. 1941	1.71	.28	.40	.50	2.89	.65	4.52	5.17
Cigars and cigarettes	Apr. 1942	4.80	.13	.53	.29	5.75	.94	3.27	4.21
	Mar. 1942	3.83	.07	1.28	.30	5.48	1.10	3.10	4.20
	Apr. 1941	2.15	.11	.44	.15	2.85	1.34	1.96	3.30
Cotton manufacturing	Apr. 1942	5.78	.38	.75	.58	7.49	1.25	6.74	7.99
	Mar. 1942	4.38	.36	.75	.59	6.08	1.14	5.96	7.10
	Apr. 1941	3.37	.29	.62	.30	4.58	1.19	4.98	6.17
Dyeing and finishing textiles	Apr. 1942	5.40	.68	1.37	.86	8.31	1.33	6.65	7.98
	Mar. 1942	3.86	.45	.50	.68	5.49	1.09	5.36	6.45
	Apr. 1941	2.73	.30	.95	.28	4.26	.59	4.16	4.75
Flour	Apr. 1942	4.41	.43	.98	.52	6.34	.51	5.59	6.10
	Mar. 1942	3.26	.52	.75	.72	5.25	.62	3.69	4.31
	Apr. 1941	1.25	.35	.72	.46	2.78	.43	2.64	3.07
Foundries and machine shops	Apr. 1942	3.59	.50	1.23	.90	6.22	.62	6.84	7.46
	Mar. 1942	2.89	.46	.74	.76	4.85	.55	6.43	6.98
	Apr. 1941	2.52	.41	1.00	.38	4.31	.58	6.69	7.27
Furniture	Apr. 1942	6.36	.44	3.59	.87	11.26	1.36	5.80	7.16
	Mar. 1942	4.78	.39	2.84	.90	8.91	.79	5.74	6.53
	Apr. 1941	2.92	.26	.81	.46	4.45	1.25	4.91	6.16
Glass	Apr. 1942	2.77	.21	1.69	.98	5.65	1.21	3.60	4.81
	Mar. 1942	2.11	.24	1.84	.98	5.17	1.36	2.76	4.12
	Apr. 1941	1.22	.16	.87	.37	2.62	.89	3.76	4.65
Hardware	Apr. 1942	5.74	.48	1.76	.81	8.79	.41	4.92	5.33
	Mar. 1942	4.65	.38	1.16	.68	6.87	1.25	3.87	5.12
	Apr. 1941	3.93	.28	.21	.52	4.94	.32	5.57	5.89
Iron and steel	Apr. 1942	2.29	.16	.34	1.04	3.83	.54	3.80	4.34
	Mar. 1942	1.79	.13	.35	1.06	3.33	.51	3.21	3.72
	Apr. 1941	.99	.12	.19	.52	1.82	.47	3.42	3.89
Knit goods	Apr. 1942	3.89	.19	1.27	.38	5.73	.74	3.69	4.43
	Mar. 1942	3.16	.26	.97	.39	4.78	1.14	3.45	4.59
	Apr. 1941	2.06	.15	.68	.13	3.02	1.27	2.93	4.20
Leather	Apr. 1942	2.54	.22	1.10	.66	4.52	.52	3.23	3.75
	Mar. 1942	2.02	.24	1.15	.72	4.13	.49	2.78	3.27
	Apr. 1941	1.07	.14	1.10	.37	2.68	.71	2.66	3.37
Lighting equipment	Apr. 1942	3.12	.20	8.50	.68	12.50	1.01	6.59	7.60
	Mar. 1942	2.33	.36	5.83	1.11	9.63	4.04	4.70	8.74
	Apr. 1941	2.89	.22	.67	.20	3.98	.21	5.75	5.96
Men's clothing	Apr. 1942	3.16	.27	.88	.23	4.54	.95	3.66	4.61
	Mar. 1942	2.72	.24	1.33	.20	4.49	.89	3.27	4.16
	Apr. 1941	1.57	.19	2.16	.16	4.08	1.05	2.69	3.74
Paints and varnishes	Apr. 1942	3.44	.29	1.90	1.96	7.59	.39	3.28	3.67
	Mar. 1942	2.97	.33	1.00	.92	5.22	.49	4.74	5.23
	Apr. 1941	1.96	.35	.38	.40	3.09	.73	5.92	6.65
Paper and pulp	Apr. 1942	3.61	.42	.86	.94	5.83	.49	5.06	5.55
	Mar. 1942	2.54	.56	.67	.79	4.56	.39	4.43	4.82
	Apr. 1941	1.15	.17	.52	.41	2.25	.31	3.94	4.25
Petroleum refining	Apr. 1942	.82	.11	.47	.73	2.13	.19	2.49	2.68
	Mar. 1942	1.00	.09	.33	.71	2.13	.58	2.61	3.19
	Apr. 1941	.38	.06	.71	.33	1.48	.63	1.92	2.55
Planing mills	Apr. 1942	7.33	.65	2.64	1.05	11.67	1.00	8.80	9.80
	Mar. 1942	5.03	.45	1.48	1.03	7.99	1.69	6.02	7.71
	Apr. 1941	2.65	.31	2.30	.50	5.76	1.49	3.63	5.12
Printing: Book and job	Apr. 1942	3.41	.24	2.42	.73	6.80	1.47	3.72	5.19
	Mar. 1942	2.63	.28	2.53	.65	6.09	1.10	4.32	5.42
	Apr. 1941	2.38	.33	3.87	.76	7.34	1.93	5.54	7.47
Printing: Newspapers and periodicals	Apr. 1942	.85	.23	1.08	.41	2.57	.82	1.70	2.52
	Mar. 1942	.64	.10	1.27	.51	2.52	.93	1.88	2.81
	Apr. 1941	.43	.31	.86	.19	1.79	1.04	1.20	2.24
Radios and phonographs	Apr. 1942	3.51	.38	3.79	.72	8.40	1.61	6.58	8.19
	Mar. 1942	3.91	.32	2.63	.72	7.58	1.02	7.22	8.24
	Apr. 1941	2.29	.30	.55	.24	3.38	3.16	5.93	9.09
Rayon and allied products	Apr. 1942	1.15	.20	.82	.68	2.85	.72	2.66	3.38
	Mar. 1942	1.01	.19	.73	.49	2.42	.71	2.39	3.10
	Apr. 1941	.97	.10	.21	.47	1.75	.38	3.61	3.99

TABLE 2.—*Monthly Turn-Over Rates (per 100 Employees) in 42 Manufacturing Industries, April 1942*—Continued

Industry	Date	Separation rates					Accession rates		
		Quit	Discharge	Layoff	Miscellaneous separation [2]	Total separation	Rehiring	New hiring	Total accession
Rubber boots and shoes	Apr. 1942	3.66	0.16	0.87	0.95	5.64	1.10	5.09	6.19
	Mar. 1942	3.86	.25	.40	1.11	5.62	2.25	4.09	6.34
	Apr. 1941	2.53	.27	.57	.55	3.92	.91	6.81	7.72
Rubber tires	Apr. 1942	1.71	.08	2.51	.76	5.06	1.42	4.32	5.74
	Mar. 1942	1.22	.11	3.28	1.27	5.88	1.63	3.75	5.38
	Apr. 1941	1.16	.09	.95	.30	2.50	.31	3.36	3.67
Sawmills	Apr. 1942	7.46	.47	1.40	1.06	10.39	1.94	8.54	10.48
	Mar. 1942	5.60	.51	1.63	1.12	8.86	1.89	6.47	8.36
	Apr. 1941	2.43	.30	1.23	.27	4.23	2.29	4.91	7.20
Silk and rayon goods	Apr. 1942	5.29	.39	1.07	1.02	7.77	1.21	6.49	7.70
	Mar. 1942	3.93	.40	.90	.53	5.76	1.26	5.08	6.34
	Apr. 1941	3.52	.88	1.77	.18	6.35	1.13	4.91	6.04
Slaughtering and meat packing	Apr. 1942	3.18	.34	4.55	1.35	9.42	6.24	6.53	12.77
	Mar. 1942	2.47	.32	5.89	1.12	9.80	5.65	3.26	8.91
	Apr. 1941	1.40	.20	6.93	.54	9.07	5.50	3.62	9.12
Stamped and enameled ware	Apr. 1942	5.17	.56	2.67	1.35	9.75	1.27	8.10	9.37
	Mar. 1942	3.36	.41	2.51	.92	7.20	2.21	5.71	7.92
	Apr. 1941	4.44	.39	.93	.44	6.20	.78	8.62	9.40
Steam and hot-water heating apparatus	Apr. 1942	4.02	.54	1.02	1.32	6.90	.67	5.61	6.28
	Mar. 1942	3.68	.43	.66	.96	5.73	1.01	4.79	5.80
	Apr. 1941	2.62	.29	.68	.48	4.07	.16	4.63	4.79
Stoves	Apr. 1942	4.89	.15	4.48	.72	10.24	2.05	4.45	6.50
	Mar. 1942	3.99	.32	1.81	.56	6.68	1.88	3.31	5.19
	Apr. 1941	2.83	.29	.48	.51	4.11	.73	10.14	10.87
Structural and ornamental metal work	Apr. 1942	4.39	.72	1.42	.93	7.46	.82	7.52	8.34
	Mar. 1942	3.31	.73	1.27	.75	6.06	1.14	8.13	9.27
	Apr. 1941	1.93	.22	2.10	.56	4.81	.81	4.44	5.25
Textile machinery	Apr. 1942	4.04	.20	.31	1.17	5.72	.32	5.40	5.72
	Mar. 1942	3.29	.28	.49	.86	4.92	.40	4.63	5.03
	Apr. 1941	2.53	.16	.23	.23	3.15	.49	4.76	5.25
Tools (not including edge tools, machine tools, files, and saws)	Apr. 1942	4.81	.64	.26	.57	6.28	.16	6.64	6.80
	Mar. 1942	3.44	.53	.41	.67	5.05	.39	5.61	6.00
	Apr. 1941	2.77	.32	.56	.37	4.02	.19	5.64	5.83
Woolen and worsted goods	Apr. 1942	4.88	.20	.66	.91	6.65	1.72	6.25	7.97
	Mar. 1942	3.39	.18	1.29	.57	5.43	1.50	3.89	5.39
	Apr. 1941	3.07	.25	1.01	.30	4.63	1.53	5.11	6.64

TABLE 3.—*Monthly Quit Rates (per 100 Employees) in Selected War Industries*

Industry	Quit rates		
	April 1942	March 1942	April 1941
Aircraft	3.79	3.70	2.46
Aluminum	3.14	3.07	2.28
Brass, bronze, and copper products	3.48	3.02	2.87
Electrical machinery	2.34	1.88	1.70
Engines and turbines	2.07	1.72	2.14
Machine tools	3.50	2.75	2.10
Shipbuilding	4.29	4.27	2.49

Building Operations

SUMMARY OF BUILDING CONSTRUCTION IN PRINCIPAL CITIES, MAY 1942 [1]

PERMIT valuations for May—the first full month of operation under the War Production Board's stop construction order—were 33 percent lower than in the corresponding month of last year. The volume of privately financed construction in the reporting cities was cut by more than half, but this sharp reduction was partially offset by the increase in Federal contracts in these cities. The major loss of 46 percent was in new residential construction. Permit valuations for nonresidential construction declined 10 percent and those for additions, alterations, and repairs, 41 percent.

May permit valuations were also 11 percent below those for the previous month. The volume of both Federal and non-Federal nonresidential construction increased between April and May, and the loss over this period resulted entirely from lower permit valuations for privately financed residential buildings and additions, alterations, and repairs.

Comparison of May 1942 With April 1942 and May 1941

The volume of building construction in 2,410 identical cities with populations of 500 and over, which reported to the Bureau of Labor Statistics in April and May 1942 and May 1941, is summarized in table 1.

TABLE 1.—*Summary of Building Construction for Which Permits Were Issued in 2,410 Identical Cities, May 1942*

Class of construction	Number of buildings			Permit valuation		
	May 1942	Percentage change from—		May 1942	Percentage change from—	
		April 1942	May 1941		April 1942	May 1941
All construction	67,781	−7.1	−5.7	$182,203,536	−10.6	−32.8
New residential	22,184	−5.3	−29.5	77,053,396	−27.2	−45.5
New nonresidential	9,250	−17.1	−38.7	83,523,458	+18.9	−10.3
Additions, alterations, and repairs	36,347	−5.3	−18.7	21,626,682	−21.9	−41.0

The number of new dwelling units for which permits were issued and the permit valuation of such new housekeeping residential construction

[1] More detailed information by geographic divisions and population groups is contained in a separate mimeographed release entitled "Building Construction, May 1942," copies of which will be furnished upon request.

in the 2,410 cities reporting in May 1942 are presented in table 2. Percentage changes between May and April 1942 and May 1941 are also shown.

TABLE 2.—*Number and Permit Valuation of New Dwelling Units in 2,410 Identical Cities, May 1942, by Source of Funds and Type of Dwelling*

Source of funds and type of dwelling	Number of dwelling units			Permit valuation		
	May 1942	Percentage change from—		May 1942	Percentage change from—	
		April 1942	May 1941		April 1942	May 1941
All dwellings	24,051	−23.4	−35.7	$76,726,296	−26.7	−45.0
Privately financed	10,930	−52.7	−67.3	36,121,921	−52.3	−71.6
1-family	8,690	−42.5	−66.7	29,930,661	−45.3	−72.1
2-family [1]	896	−67.5	−58.5	2,539,316	−63.1	−53.3
Multifamily [2]	1,344	−74.3	−74.2	3,651,944	−73.9	−74.8
Publicly financed	13,121	+58.1	+233.0	40,604,375	+39.9	+229.8

[1] Includes 1- and 2-family dwellings with stores.
[2] Includes multifamily dwellings with stores.

Comparison of First 5 Months of 1941 and 1942

Permit valuations reported in the first 5 months of 1941 and 1942 are compared in table 3.

TABLE 3.—*Permit Valuation of Building Construction, First 5 Months of 1941 and 1942, by Class of Construction* [1]

Class of construction	Permit valuation		
	First 5 months of—		Percentage change
	1942	1941	
All construction	$1,008,334,694	$1,168,689,669	−13.7
New residential	468,220,003	595,520,772	−21.4
New nonresidential	415,714,384	426,262,386	−2.5
Additions, alterations, and repairs	124,400,307	146,906,511	−15.3

[1] Based on reports from cities with a population of 500 and over, the cities being identical for any given month of both years.

The number and permit valuation of new dwelling units for which permits were issued in the first 5 months of 1942 are compared with similar data for the corresponding months of 1941 in table 4.

TABLE 4.—*Number and Permit Valuation of New Dwelling Units, First 5 Months of 1941 and 1942,* [1] *by Source of Funds and Type of Dwelling*

Source of funds and type of dwelling	Number of dwelling units			Permit valuation		
	First 5 months of—		Percentage change	First 5 months of—		Percentage change
	1942	1941		1942	1941	
All dwellings	138,012	160,021	−13.8	$464,091,684	$588,637,172	−21.2
Privately financed	95,585	136,433	−29.9	323,240,064	514,171,293	−37.1
1-family	70,257	102,937	−31.7	257,498,173	419,725,984	−38.7
2-family [2]	7,861	8,940	−12.1	20,128,357	22,601,010	−10.9
Multifamily [3]	17,467	24,556	−28.9	45,613,534	71,844,299	−36.5
Publicly financed	42,427	23,588	+79.9	140,851,620	74,465,879	+89.1

[1] Based on reports from cities with a population of 500 and over, the cities being identical for any given month of both years.
[2] Includes 1- and 2-family dwellings with stores.
[3] Includes multifamily dwellings with stores.

Construction From Public Funds, May 1942

The value of contracts awarded and force-account work started during April and May 1942 and May 1941 on all construction projects financed wholly or partially from Federal funds is shown in table 5. This table includes other types of construction as well as building construction, both inside and outside the 2,410 reporting cities.

TABLE 5.—*Value of Contracts Awarded and Force-Account Work Started on Construction Projects Financed From Federal Funds, April and May 1942 and May 1941* [1]

Federal agency	Contracts awarded and force-account work started		
	May 1942	April 1942 [2]	May 1941 [2]
Total	$734,655,281	$677,235,037	$610,132,802
War Public Works	831,610	7,541,564	[3]
Federal agency projects under the WPA	0	0	18,412
Regular Federal appropriations [4]	611,178,663	624,270,248	580,228,543
Federal Public Housing Authority [5]	122,645,008	45,423,225	[6] 29,885,847

[1] Preliminary; subject to revision.
[2] Revised.
[3] Program not started until October 1941.
[4] Exclusive of contracts awarded for public housing.
[5] Includes contracts awarded for all public housing projects.
[6] Includes $19,124,732 for contracts awarded on USHA projects and $10,761,115 for contracts awarded from regular Federal appropriations.

The value of all contracts awarded for public buildings and highway construction to be financed wholly from State funds, as reported by the State governments for April and May 1942 and May 1941, was as follows:

	Public buildings	*Highway construction*
May 1942	$327,824	[1] $8,621,402
April 1942	479,714	5,940,339
May 1941	1,921,172	13,156,634

[1] Revised.

Coverage of Building Permit Statistics

Building-permit data are collected by the Bureau of Labor Statistics directly from local building officials, except in the States of Illinois, Massachusetts, New Jersey, New York, North Carolina, and Pennsylvania, where State departments of labor collect and forward the data to the Bureau. Reports are obtained each month from more than 2,500 places having a population of 500 or more in 1940, from which are selected those for cities which also reported in the preceding month and in the corresponding month of the previous year. The resulting tabulations of identical cities cover practically all cities with a population of 50,000 or more; the completeness of the coverage of cities in the remaining population groups decreases with the size of city.

In addition, the Bureau receives notifications of the value of construction contracts awarded by Federal and State governments. Federal and State building construction in the 2,410 reporting cities totaled $80,346,000 in May 1942, as contrasted with $60,312,000 in the previous month and $53,670,000 in May 1941.

The permit-valuation figures represent estimates of construction costs made by prospective builders when applying for permits to build, in the case of privately financed construction, and the value of contracts awarded, in the case of construction financed with Federal or State funds. No land costs are included. Only building construction within the corporate limits of the reporting cities is included in the tabulations.

Retail Prices

FOOD PRICES IN MAY AND EARLY JUNE 1942

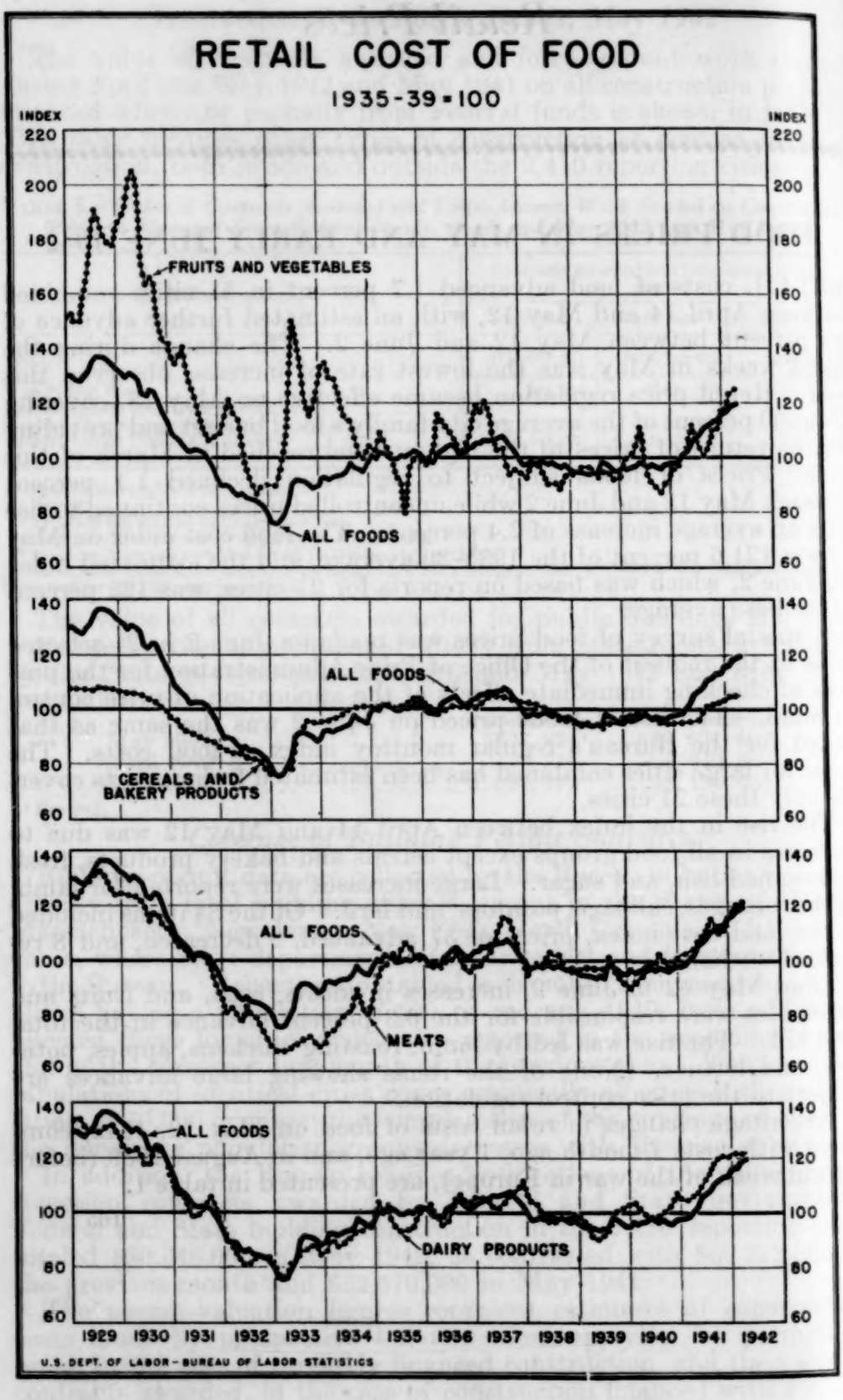
RETAIL costs of food advanced 1.7 percent in 51 cities combined between April 14 and May 12, with an estimated further advance of 0.3 percent between May 12 and June 2. The change during the last 3 weeks in May was the lowest rate of increase observed this year. Retail price regulation became effective on May 18, covering about 60 percent of the average city family's food budget and providing for the return of prices to the highest level reached in March of this year. Prices of foods subject to regulation declined 1.1 percent between May 12 and June 2 while uncontrolled prices continued to rise with an average increase of 2.4 percent. The food cost index on May 12 was 121.6 percent of the 1935–39 average, and the estimated index for June 2, which was based on reports for 21 cities, was 122 percent of the base average.

A special survey of food prices was made on June 2 in 21 selected cities at the request of the Office of Price Administration for the purpose of checking immediate effects of the application of price control at retail. The list of foods priced on June 2 was the same as that priced for the Bureau's regular monthly index of food costs. The index for large cities combined has been estimated from reports covering only these 21 cities.

The rise in the index between April 14 and May 12 was due to increases in all food groups except cereals and bakery products, fresh and canned fish, and sugar. Large increases were reported for lamb, apples, oranges, cabbage, potatoes, and lard. Of the 54 items included in the food cost index, prices of 37 advanced, 9 decreased, and 8 remained unchanged.

From May 12 to June 2, increases in meats, eggs, and fruits and vegetables were responsible for the 0.3 percent advance in the total food bill. The rise was led by lamb, roasting chickens, apples, potatoes, and lettuce. None of the items showing large advances are subject to the price control regulation.

Percentage changes in retail costs of food on May 12, 1942, compared with costs 1 month ago, 1 year ago, and in August 1939 (before the outbreak of the war in Europe), are presented in table 1.


RETAIL COST OF FOOD
1935-39 = 100
INDEX
220
200
180
160
140
120
100
80
60
FRUITS AND VEGETABLES
ALL FOODS
CEREALS AND BAKERY PRODUCTS
MEATS
DAIRY PRODUCTS
1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942
U.S. DEPT. OF LABOR - BUREAU OF LABOR STATISTICS

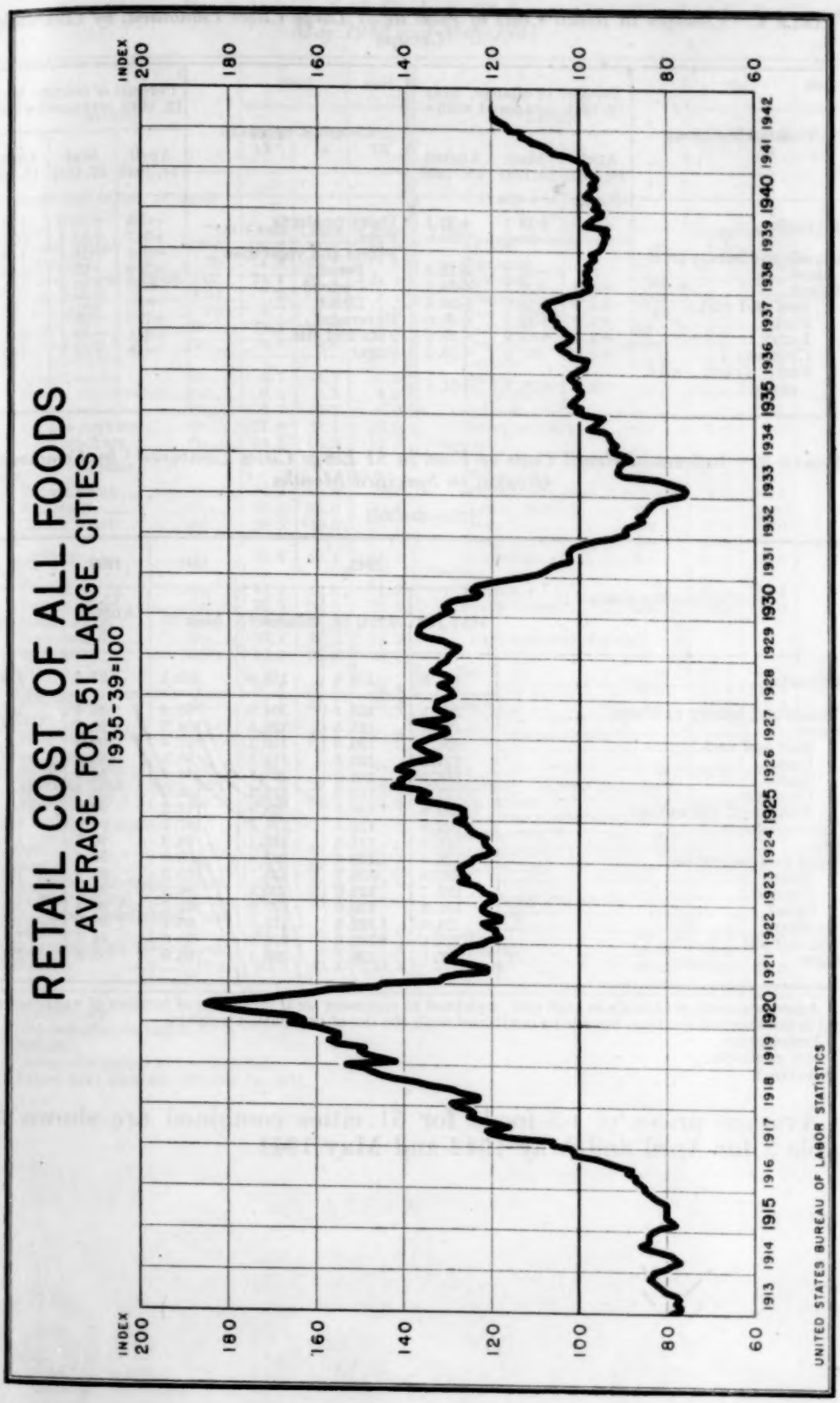

RETAIL COST OF ALL FOODS
AVERAGE FOR 51 LARGE CITIES
1935-39=100
INDEX
200
180
160
140
120
100
80
60
1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942
UNITED STATES BUREAU OF LABOR STATISTICS

TABLE 1.—*Changes in Retail Costs of Food in 51 Large Cities Combined, by Commodity Groups*

Commodity group	Percent of change, May 12, 1942, compared with—			Commodity group	Percent of change, May 12, 1942, compared with—		
	April 14, 1942	May 13, 1941	August 15, 1939		April 14, 1942	May 13, 1941	August 15, 1939
All foods	+1.7	+19.1	+30.1	Dairy products	+0.8	+14.5	+32.4
Cereals and bakery products	0	+10.2	+12.5	Eggs	+3.7	+22.4	+27.2
Meats	+2.3	+19.3	+29.9	Fruits and vegetables	+2.4	+24.3	+39.2
Beef and veal	+2.9	+16.0	+24.6	Fresh	+2.9	+22.8	+40.0
Pork	+2.2	+29.5	+40.0	Canned	+.6	+30.3	+34.0
Lamb	+9.4	+12.9	+19.6	Dried	+.5	+27.8	+45.4
Chickens	+1.1	+7.0	+19.9	Beverages	+1.6	+29.7	+31.3
Fish, fresh and canned	−3.8	+28.8	+51.5	Fats and oils	+2.1	+39.1	+44.9
				Sugar	−.8	+18.9	+32.9

TABLE 2.—*Indexes of Retail Costs of Food in 51 Large Cities Combined* [1] *by Commodity Groups, in Specified Months*

[1935–39=100]

Commodity group	1942			1941	1939	1929
	May 12 [2]	April 14	March 17	May 13	August 15	May 15
All foods	121.6	119.6	118.6	102.1	93.5	129.7
Cereals and bakery products	105.1	105.1	104.8	95.4	93.4	107.4
Meats	124.3	121.5	120.5	104.2	95.7	128.7
Beef and veal	124.1	120.6	119.7	107.0	99.6	[3]
Pork	123.2	120.5	117.5	95.1	88.0	[3]
Lamb	118.2	108.0	108.7	104.7	98.8	[3]
Chickens	113.4	112.2	112.2	106.0	94.6	[3]
Fish, fresh and canned	150.9	[4] 156.9	158.9	117.2	99.6	[3]
Dairy products	123.3	122.3	121.7	107.7	93.1	129.9
Eggs	115.4	111.3	112.1	94.3	90.7	114.5
Fruits and vegetables	128.6	125.6	123.4	103.5	92.4	159.8
Fresh	129.9	126.2	123.7	105.8	92.8	162.4
Canned	122.7	122.0	120.8	94.2	91.6	125.6
Dried	131.3	130.6	127.9	102.7	90.3	168.7
Beverages	124.6	[4] 122.6	119.6	96.1	94.9	166.0
Fats and oils	122.4	[4] 119.9	116.8	88.0	84.5	127.6
Sugar	127.1	128.1	128.5	106.9	95.6	111.3

[1] Aggregate costs of 54 foods in each city, weighted to represent total purchases of families of wage earners and lower-salaried workers, have been combined with the use of population weights.
[2] Preliminary.
[3] Not available.
[4] Revised.

Average prices of 65 foods for 51 cities combined are shown in table 3 for April and May 1942 and May 1941.

TABLE 3.—*Average Retail Prices of 65 Foods in 51 Large Cities Combined, April and May 1942 and May 1941*

Article	1942		1941
	May 12 [1]	April 14	May 13
Cereals and bakery products			
Cereals:	*Cents*	*Cents*	*Cents*
Flour, wheat, 10 lbs.	51.6	52.5	43.9
Macaroni, lb.	14.2	14.3	13.8
Wheat cereal [2], 28-oz. pkg.	24.1	24.1	23.4
Corn flakes, 8 oz.	7.2	7.2	7.1
Corn meal, lb.	4.7	4.7	4.3
Rice [2], do.	12.3	12.2	8.5
Rolled oats [2], do.	8.6	8.6	7.1
Bakery products:			
Bread, white, do.	8.7	8.7	7.8
Bread, whole-wheat, do.	9.5	9.5	8.8
Bread, rye, do.	9.7	9.7	9.0
Vanilla cookies, do.	27.6	27.1	25.5
Soda crackers, do.	16.5	16.5	14.5
Meats			
Beef:			
Round steak, do.	44.2	42.6	37.6
Rib roast, do.	34.0	33.0	30.4
Chuck roast, do.	28.9	[3]28.6	24.1
Veal:			
Cutlets, do.	53.6	52.4	45.3
Pork:			
Chops, do.	43.2	42.0	31.9
Bacon, sliced, do.	39.3	38.6	33.4
Ham, sliced [2], do.	58.8	58.3	47.8
Ham, whole, do.	37.8	37.2	29.2
Salt pork, do.	24.0	23.5	18.4
Lamb:			
Leg, do.	33.8	30.8	29.4
Rib chops, do.	41.3	37.7	37.2
Poultry:			
Roasting chickens, do.	36.1	35.7	33.9
Fish:			
Fresh, frozen, do.	([4])	([4])	([4])
Salmon, pink, 16-oz. can.	21.8	21.6	16.8
Salmon, red [2], do.	40.0	39.7	27.6
Dairy products			
Butter, lb.	45.7	43.6	41.2
Cheese, do.	34.0	34.5	27.6
Milk, fresh (delivered), quart.	14.9	15.0	13.0
Milk, fresh (store), do.	13.5	13.5	11.9
Milk, fresh (delivered and store) [2], do.	14.4	14.5	12.6
Milk, evaporated, 14½-oz. can.	8.7	8.8	7.3
Eggs, doz.	40.9	39.4	33.3

Article	1942		1941
	May 12 [1]	April 14	May 13
Fruits and vegetables			
Fresh:	*Cents*	*Cents*	*Cents*
Apples, lb.	7.5	6.8	5.7
Bananas, do.	12.0	11.0	7.6
Oranges, doz.	31.4	28.4	28.3
Grapefruit [2], each.	6.3	5.1	([5])
Beans, green, lb.	13.4	16.3	12.7
Cabbage, do.	4.5	4.0	4.5
Carrots, bunch.	6.6	6.2	5.9
Lettuce, head.	9.2	8.4	9.8
Onions, lb.	6.8	9.5	6.5
Potatoes, 15 lbs.	53.1	49.6	34.3
Spinach, lb.	7.3	6.8	6.3
Sweetpotatoes, do.	5.4	5.1	5.6
Canned:			
Peaches, No. 2½ can.	23.3	23.3	17.0
Pineapple, do.	27.1	26.7	21.1
Grapefruit juice [2], No. 2 can.	9.8	10.1	([5])
Beans, green [2], do.	14.0	13.9	10.5
Corn, do.	13.0	12.9	11.1
Peas, do.	15.8	15.7	13.5
Tomatoes, do.	12.1	12.0	8.7
Dried:			
Prunes, lb.	12.3	12.2	9.6
Navy beans, do.	9.0	9.0	6.9
Beverages and chocolate			
Coffee, lb.	28.9	28.6	22.2
Tea, ¼ lb.	22.4	[3]21.7	17.8
Cocoa [2], 8-oz. can.	10.2	10.0	9.1
Fats and oils			
Lard, lb.	17.9	17.0	11.9
Shortening, other than lard:			
In cartons, lb.	19.8	19.5	12.8
In other containers, do.	26.6	25.6	19.1
Salad dressing, pt.	25.4	25.2	20.4
Oleomargarine, lb.	22.4	22.3	16.0
Peanut butter, do.	26.9	26.1	17.8
Sugar and sweets			
Sugar, do.	6.9	6.9	5.7
Corn sirup [2], 24 oz.	14.8	14.6	13.7
Molasses [2], 18 oz.	14.5	14.4	13.4

[1] Preliminary.
[2] Not included in index.
[3] Revised.
[4] Composite prices not computed.
[5] Priced first time on October 14, 1941.

Details by Regions and Cities

Retail food costs advanced between April 14 and May 12 in 47 of the 51 cities covered by the Bureau of Labor Statistics survey. The largest increases were reported for Manchester, N. H., and Portland, Oreg. (3.8 percent); Portland, Maine (3.2 percent); Pittsburgh, Pa. (3.1 percent); and Providence, R. I. (3 percent). Declines were reported during the month in 3 cities (Mobile, Ala.; New Orleans, La.; and Norfolk, Va.), while food costs remained unchanged in St. Louis.

Indexes of food costs by cities are presented in table 4 for April and May 1942 and May 1941.

TABLE 4.—*Indexes of the Average Retail Cost of All Foods by Cities,*[1] *April and May 1942 and May 1941*

[1935–39=100]

Region and city	1942		1941
	May 12[2]	April 14	May 13
United States	121.6	119.6	102.1
New England:			
Boston	118.3	115.3	99.5
Bridgeport	121.3	118.7	102.3
Fall River	120.8	118.5	102.2
Manchester	124.0	119.5	101.3
New Haven	120.6	117.9	101.4
Portland, Maine	121.4	117.6	100.7
Providence	122.1	[4] 118.6	101.1
Middle Atlantic:			
Buffalo	125.2	122.4	106.0
Newark	120.9	119.3	102.7
New York	118.0	116.6	102.3
Philadelphia	119.4	117.5	100.1
Pittsburgh	121.4	117.7	103.6
Rochester	122.3	119.1	105.0
Scranton	121.0	118.5	102.9
East North Central:			
Chicago	121.7	120.0	101.9
Cincinnati	122.4	120.7	100.9
Cleveland	124.1	122.3	103.4
Columbus, Ohio	118.6	117.1	98.6
Detroit	122.2	121.0	100.7
Indianapolis	125.2	122.8	103.5
Milwaukee	119.8	117.9	101.1
Peoria	129.0	126.0	104.0
Springfield, Ill	128.0	126.0	100.8
West North Central:			
Kansas City	118.8	117.2	97.9
Minneapolis	120.9	118.0	103.1
Omaha	119.9	117.9	101.9
West North Central—Con.			
St. Louis	123.8	123.8	102.4
St. Paul	118.7	116.3	101.5
South Atlantic:			
Atlanta	120.4	120.3	99.0
Baltimore	125.8	123.6	103.7
Charleston, S. C	123.2	122.7	100.0
Jacksonville	127.4	126.1	103.1
Norfolk [3]	126.1	126.4	102.1
Richmond	120.9	119.2	97.8
Savannah	130.3	128.6	104.7
Washington, D. C	121.0	118.0	102.8
East South Central:			
Birmingham	120.5	118.9	97.7
Louisville	122.6	120.6	101.4
Memphis	123.5	120.8	99.8
Mobile	126.8	129.1	104.2
West South Central:			
Dallas	116.8	116.0	96.4
Houston	125.9	124.6	105.0
Little Rock	123.2	123.1	100.1
New Orleans	128.9	130.0	105.2
Mountain:			
Butte	121.5	119.1	103.8
Denver	122.9	120.2	99.5
Salt Lake City	124.2	120.7	103.5
Pacific:			
Los Angeles	127.8	125.2	[4] 105.2
Portland, Oreg	134.5	129.6	106.8
San Francisco	125.5	123.6	104.9
Seattle	129.9	127.5	108.0

[1] Aggregate costs of 54 foods in each city, weighted to represent total purchases of families of wage earners and lower-salaried workers, have been combined for the United States with the use of population weights. Primary use is for time to time comparisons rather than place to place comparisons.
[2] Preliminary.
[3] Includes Portsmouth and Newport News.
[4] Revised.

Wholesale Prices

WHOLESALE PRICES IN MAY 1942

THE effect of the Office of Price Administration's general maximum price regulation was reflected in wholesale commodity markets during May 1942. Although the Bureau of Labor Statistics index of 889 price series rose 0.1 percent, there was a definite slackening in the upward movement of prices in primary markets, the first since the autumn of 1940. At 98.8 percent of the 1926 average, the all-commodity index reached the highest level since October 1926. The index is more than 16 percent higher than for May 1941 and nearly 32 percent above the average for August 1939.

The changes in the group indexes were comparatively slight. Foods, textile products, fuel and lighting materials, metals and metal products, chemicals and allied products, housefurnishing goods, and miscellaneous commodities increased from 0.1 to 0.4 percent, while farm products, hides and leather products, and building materials declined from 0.1 to 0.3 percent.

In the past year, prices for most commodities have shown marked increases. Farm products have advanced 36 percent; foods, 24 percent; textile products, 18 percent; chemicals and allied products, 16 percent; and hides and leather products, housefurnishing goods, and miscellaneous commodities, more than 10 percent. Average prices for fuel and lighting materials were only 3 percent higher than in May of 1941, whereas metals and metal products rose about 6 percent and building materials nearly 10 percent. Outstanding price increases have been recorded in most commodities, particularly agricultural products and imported fats and oils, since the outbreak of the war in Europe. Since August 1939 fats and oils have risen 167 percent; cattle feed, 105 percent; grains and livestock, nearly 80 percent; fruits and vegetables, "other farm products" (including cotton), cotton goods, and drugs and pharmaceuticals, from 65 to 70 percent; and meats, and hides and skins, more than 50 percent.

As a result of lower prices for cotton, oats, rye, hogs, steers, live poultry, peanuts, hay, flaxseed, tobacco, and onions, the farm-products group index dropped 0.1 percent from its 13-year peak reached in April. Prices were higher for barley, corn, wheat, hops, cows, calves, lambs, and wool. Sharp seasonal advances were reported in prices for most fresh fruits and vegetables.

Food prices in primary markets continued to advance and reached the highest point since November 1929. The price rise was led by increases of nearly 32 percent for lamb and over 25 percent for mutton. Fresh beef and veal also averaged higher as did butter, cheese, milk at San Francisco, eggs, pickled codfish, cottonseed oil, and fresh and dried fruits and vegetables. Lower prices were reported for evapo-

rated milk, fresh milk in the Chicago market, flour, oatmeal, rice, bananas, canned apricots, pork, jelly, corn oil, and olive oil.

The index for hides and skins fell 1.7 percent because of lower prices for goatskins and sheepskins. Average prices for shoes declined fractionally.

Wholesale prices for men's suits, topcoats, and underwear advanced early in May. Cotton goods prices, except industrial materials, weakened with trading reported as light. Quotations were also lower for cordage.

Substantial increases occurred in prices for Pennsylvania crude petroleum and for most petroleum products. Prices for coal in some areas averaged higher in May than for the preceding month.

Except for an upward revision in ceiling prices for ferromanganese at $15 a ton above the prevailing market level and a minor increase in prices for quicksilver, there was little change in the metal markets during May.

Average wholesale prices for lumber and millwork declined slightly with lower prices reported for gum, white oak, western white pine lumber, and southern pine flooring. Rosin and turpentine dropped about 5 percent. Quotations were higher for cement, for birch, red oak, sugar pine, and Ponderosa pine lumber, and for maple flooring and red cedar shingles. In addition, higher prices were reported for paint materials such as lamp black, linseed oil, and shellac.

Pronounced increases in prices for ergot, nux vomica, and crude naphthalene together with smaller increases for stearic acid and peroxide of hydrogen caused the index for the chemicals and allied products group to advance slightly. Quotations were somewhat lower for fats and oils and for fertilizer materials.

Higher prices were reported for dinnerware, while prices for sheets, pillow cases, and tablecloths declined.

Percentage comparisons of the May 1942 level of wholesale prices with April 1942 and May 1941 and August 1939 with corresponding index numbers are given in table 1.

TABLE 1.—*Index Numbers of Wholesale Prices by Groups and Subgroups of Commodities, May 1942 With Comparisons for April 1942, May 1941, and August 1939*

[1926=100]

Group and subgroup	May 1942	April 1942	Percent of change	May 1941	Percent of change	August 1939	Percent of change
All commodities	[1] 98.8	[1] 98.7	+0.1	84.9	+16.4	75.0	+31.7
Farm products	104.4	104.5	−.1	76.4	+36.6	61.0	+71.1
Grains	92.2	91.5	+.8	74.5	+23.8	51.5	+79.0
Livestock and poultry	117.6	118.3	−.6	88.0	+33.6	66.0	+78.2
Other farm products	99.0	99.0	0	69.5	+42.4	60.1	+64.7
Foods	98.9	98.7	+.2	79.5	+24.4	67.2	+47.2
Dairy products	93.5	94.1	−.6	81.6	+14.6	67.9	+37.7
Cereal products	89.0	90.2	−1.3	78.2	+13.8	71.9	+23.8
Fruits and vegetables	96.7	97.7	−1.0	64.0	+51.1	58.5	+65.3
Meats	114.8	112.8	+1.8	87.2	+31.7	73.7	+55.8
Other foods	90.6	90.4	+.2	76.9	+17.8	60.3	+50.2
Hides and leather products	118.8	119.2	−.3	106.4	+11.7	92.7	+28.2
Shoes	126.6	126.7	−.1	110.1	+15.0	100.8	+25.6
Hides and skins	121.4	123.5	−1.7	110.3	+10.1	77.2	+57.3
Leather	101.3	101.3	0	96.9	+4.5	84.0	+20.6
Other leather products	115.2	115.2	0	101.7	+13.3	97.1	+18.6
Textile products	98.0	97.7	+.3	83.0	+18.1	67.8	+44.5
Clothing	109.6	107.8	+1.7	90.9	+20.6	81.5	+34.5
Cotton goods	112.9	113.8	−.8	91.0	+24.1	65.5	+72.4
Hosiery and underwear	71.9	70.6	+1.8	61.3	+17.3	61.5	+16.9
Rayon	30.3	30.3	0	29.5	+2.7	28.5	+6.3
Silk	[2]	[2]		49.1		44.3	
Woolen and worsted goods	111.0	111.0	0	94.1	+18.0	75.5	+47.0
Other textile products	98.3	98.5	−.2	92.0	+6.8	63.7	+54.3

See footnotes at end of table.

TABLE 1.—*Index Numbers of Wholesale Prices by Groups and Subgroups of Commodities, May 1942 With Comparisons for April 1942, May 1941, and August 1939*—Continued

Group and subgroup	May 1942	April 1942	Percent of change	May 1941	Percent of change	August 1939	Percent of change
Fuel and lighting materials	78.0	77.7	+0.4	75.6	+3.2	72.6	+7.4
Anthracite	85.3	83.7	+1.9	80.7	+5.7	72.1	+18.3
Bituminous coal	108.5	108.2	+.3	102.9	+5.4	96.0	+13.0
Coke	122.1	122.1	0	120.4	+1.4	104.2	+17.2
Electricity	[2]	[2]	.....	67.7	.....	75.8	.....
Gas	[2]	78.1	.....	80.1	.....	86.7	.....
Petroleum and products	59.1	58.4	+1.2	55.3	+6.9	51.7	+14.3
Metals and metal products	[1] 103.9	[1] 103.8	+.1	98.1	+5.9	93.2	+11.5
Agricultural implements	96.9	96.9	0	92.4	+4.9	93.5	+3.6
Farm machinery	98.0	98.0	0	93.5	+4.8	94.7	+3.5
Iron and steel	97.2	97.1	+.1	96.1	+1.1	95.1	+2.2
Motor vehicles	[1] 112.8	[1] 112.8	0	100.2	+12.6	92.5	+21.9
Nonferrous metals	85.6	85.6	0	84.4	+1.4	74.6	+14.7
Plumbing and heating	98.5	98.5	0	83.0	+18.7	79.3	+24.2
Building materials	110.1	110.2	−.1	100.4	+9.7	89.6	+22.9
Brick and tile	98.0	98.0	0	91.9	+6.6	90.5	+8.3
Cement	94.2	94.1	+.1	91.5	+3.0	91.3	+3.2
Lumber	131.5	131.8	−.2	116.8	+12.6	90.1	+45.9
Paint and paint materials	100.6	100.6	0	89.3	+12.7	82.1	+22.5
Plumbing and heating	98.5	98.5	0	83.0	+18.7	79.3	+24.2
Structural steel	107.3	107.3	0	107.3	0	107.3	0
Other building materials	103.8	103.8	0	96.3	+7.8	89.5	+16.0
Chemicals and allied products	97.3	97.1	+.2	83.6	+16.4	74.2	+31.1
Chemicals	96.5	96.4	+.1	86.8	+11.2	83.8	+15.2
Drugs and pharmaceuticals	129.1	126.7	+1.9	98.7	+30.8	77.1	+67.4
Fertilizer materials	79.0	79.2	−.3	71.1	+11.1	65.5	+20.6
Mixed fertilizers	82.8	82.8	0	73.2	+13.1	73.1	+13.3
Oils and fats	108.6	108.8	−.2	80.6	+34.7	40.6	+167.5
Housefurnishing goods	102.9	102.8	+.1	91.4	+12.6	85.6	+20.2
Furnishings	108.1	108.0	+.1	98.0	+10.3	90.0	+20.1
Furniture	97.5	97.5	0	84.3	+15.7	81.1	+20.2
Miscellaneous	90.5	90.3	+.2	79.6	+13.7	73.3	+23.5
Automobile tires and tubes	73.0	72.5	+.7	58.8	+24.1	60.5	+20.7
Cattle feed	140.4	140.4	0	81.8	+71.6	68.4	+105.3
Paper and pulp	102.8	102.9	−.1	96.7	+6.3	80.0	+28.5
Rubber, crude	46.3	46.3	0	49.8	−7.0	34.9	+32.7
Other miscellaneous	93.5	93.4	+.1	85.6	+9.2	81.3	+15.0
Raw materials	99.7	100.0	−.3	79.7	+25.1	66.5	+49.9
Semimanufactured articles	92.9	92.8	+.1	86.4	+7.5	74.5	+24.7
Manufactured products	[1] 99.0	[1] 98.7	+.3	87.1	+13.7	79.1	+25.2
All commodities other than farm products	[1] 97.4	[1] 97.2	+.2	86.6	+12.5	77.9	+25.0
All commodities other than farm products and foods	[1] 95.7	[1] 95.6	+.1	87.4	+9.5	80.1	+19.5

[1] Preliminary.
[2] Data not yet available.

Index Numbers by Commodity Groups, 1926 to May 1942

Index numbers of wholesale prices by commodity groups for selected years from 1926 to 1941, inclusive, and by months from May 1941 to May 1942, inclusive, are shown in table 2.

The price trend for specified years and months since 1926 is shown in table 3 for the following groups of commodities: Raw materials, semimanufactured articles, manufactured products, commodities other than farm products, and commodities other than farm products and foods. The list of commodities included under the classifications "Raw materials," "Semimanufactured articles," and "Manufactured products" was given in Serial No. R. 1434—Wholesale Prices, December and Year 1941.

467211—42——12

TABLE 2.—*Index Numbers of Wholesale Prices by Groups of Commodities*

[1926=100]

Year and month	Farm products	Foods	Hides and leather products	Textile products	Fuel and lighting	Metals and metal products	Building materials	Chemicals and allied products	House-furnishing goods	Miscellaneous	All commodities
By years:											
1926	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1929	104.9	99.9	109.1	90.4	83.0	100.5	95.4	94.0	94.3	82.6	95.3
1932	48.2	61.0	72.9	54.9	70.3	80.2	71.4	73.9	75.1	64.4	64.8
1933	51.4	60.5	80.9	64.8	66.3	79.8	77.0	72.1	75.8	62.5	65.9
1936	80.9	82.1	95.4	71.5	76.2	87.0	86.7	78.7	81.7	70.5	80.8
1937	86.4	85.5	104.6	76.3	77.6	95.7	95.2	82.6	89.7	77.8	86.3
1938	68.5	73.6	92.8	66.7	76.5	95.7	90.3	77.0	86.8	73.3	78.6
1939	65.3	70.4	95.6	69.7	73.1	94.4	90.5	76.0	86.3	74.8	77.1
1940	67.7	71.3	100.8	73.8	71.7	95.8	94.8	77.0	88.5	77.3	78.6
1941	82.4	82.7	108.3	84.8	76.2	99.4	103.2	84.6	94.3	82.0	87.3
By months:											
1941:											
May	76.4	79.5	106.4	83.0	75.6	98.1	100.4	83.6	91.4	79.6	84.9
June	82.1	83.1	107.8	84.5	77.9	98.3	101.0	83.8	93.1	80.6	87.1
July	85.8	84.7	109.4	86.2	78.5	98.5	103.1	85.2	94.4	82.0	88.8
August	87.4	87.2	110.2	88.3	79.0	98.6	105.5	86.0	95.4	83.7	90.3
September	91.0	89.5	111.3	89.7	79.2	98.6	106.4	87.4	97.2	85.1	91.8
October	90.0	88.9	112.6	90.9	79.6	103.1	107.3	89.7	99.5	86.4	92.4
November	90.6	89.3	114.1	91.1	78.8	103.3	107.5	89.8	100.6	87.3	92.5
December	94.7	90.5	114.8	91.8	78.4	103.3	107.8	91.3	101.1	87.6	93.6
1942:											
January	100.8	93.7	114.9	93.6	78.2	103.5	109.3	96.0	102.4	89.3	96.0
February	101.3	94.6	115.3	95.2	78.0	103.6	110.1	97.0	102.5	89.3	96.7
March	102.8	96.1	116.7	96.6	77.7	103.8	110.5	97.1	102.6	89.7	97.6
April	104.5	98.7	119.2	97.7	77.7	[1] 103.8	110.2	97.1	102.8	90.3	[1] 98.7
May	104.4	98.9	118.8	98.0	78.0	[1] 103.9	110.1	97.3	102.9	90.5	[1] 98.8

[1] Preliminary.

TABLE 3.—*Index Numbers of Wholesale Prices by Special Groups of Commodities*

[1926=100]

Year and month	Raw materials	Semi-manufactured articles	Manufactured products	All commodities other than farm products	All commodities other than farm products and foods	Year and month	Raw materials	Semi-manufactured articles	Manufactured products	All commodities other than farm products	All commodities other than farm products and foods
By years:						By months—Con.					
1926	100.0	100.0	100.0	100.0	100.0	1941—Con.					
1929	97.5	93.9	94.5	93.3	91.6	July	86.1	87.9	90.1	89.3	89.7
1932	55.1	59.3	70.3	68.3	70.2	August	87.6	89.5	91.5	90.7	90.8
1933	56.5	65.4	70.5	69.0	71.2	September	90.0	90.3	92.8	91.9	91.6
1936	79.9	75.9	82.0	80.7	79.6	October	89.7	89.9	93.9	92.8	93.4
						November	90.2	89.7	93.8	92.7	93.5
1937	84.8	85.3	87.2	86.2	85.3	December	92.3	90.1	94.6	93.3	93.7
1938	72.0	75.4	82.2	80.6	81.7	1942:					
1939	70.2	77.0	80.4	79.5	81.3	January	96.1	91.7	96.4	94.8	94.6
1940	71.9	79.1	81.6	80.8	83.0	February	97.0	92.0	97.0	95.5	94.9
1941	83.5	86.9	89.1	88.3	89.0	March	98.2	92.3	97.8	96.2	95.2
By months:						April	100.0	92.8	[1] 98.7	[1] 97.2	[1] 95.6
1941:						May	99.7	92.9	[1] 99.0	[1] 97.4	[1] 95.7
May	79.7	86.4	87.1	86.6	87.4						
June	83.6	87.6	88.6	88.0	88.6						

[1] Preliminary.

Weekly Fluctuations

Weekly fluctuations in the major commodity group classifications during April and May are shown by the index numbers in table 4.

TABLE 4.—*Weekly Index Numbers of Wholesale Prices by Commodity Groups, April and May 1942*

[1926=100]

Commodity group	May 30	May 23	May 16	May 9	May 2	Apr. 25	Apr. 18	Apr. 11	Apr. 4
All commodities	[1] 98.8	[1] 98.7	[1] 98.5	98.6	98.7	98.6	98.3	98.1	97.9
Farm products	106.0	104.8	104.3	104.0	104.8	104.8	105.2	104.6	104.2
Foods	99.4	99.1	98.2	99.3	99.9	99.6	98.6	97.0	97.2
Hides and leather products	119.0	119.2	119.8	120.2	120.0	119.8	119.8	119.8	118.1
Textile products	97.2	97.2	97.3	97.3	97.2	97.0	97.0	97.1	97.0
Fuel and lighting materials	78.9	78.9	78.8	78.7	78.6	78.5	78.1	77.9	78.3
Metals and metal products	[1] 104.0	[1] 104.0	[1] 104.0	103.9	103.9	103.9	103.9	103.9	103.8
Building materials	109.9	110.0	110.1	110.0	108.7	108.8	108.8	110.5	110.5
Chemicals and allied products	97.3	97.3	97.3	97.3	97.1	97.1	97.1	97.1	97.1
Housefurnishing goods	104.5	104.6	104.6	104.6	104.6	104.4	104.4	104.3	104.3
Miscellaneous	90.1	90.2	90.2	89.9	89.6	90.0	89.6	89.7	89.6
Raw materials	100.6	99.8	98.9	99.5	100.1	100.4	99.9	99.4	99.4
Semimanufactured articles	92.7	92.8	92.8	92.6	92.5	92.6	92.7	92.8	92.8
Manufactured products	[1] 99.1	[1] 99.2	[1] 99.3	99.3	99.1	98.9	98.6	98.5	98.2
All commodities other than farm products	[1] 97.3	[1] 97.4	[1] 97.2	97.4	97.3	97.3	96.9	96.7	96.6
All commodities other than farm products and foods	[1] 95.9	[1] 95.9	[1] 95.9	95.8	95.6	95.6	95.5	95.6	95.6

[1] Preliminary.

Trend of Employment and Unemployment

SUMMARY OF REPORTS OF EMPLOYMENT FOR MAY 1942

TOTAL civil nonagricultural employment increased by 328,000 from mid-April to mid-May. The current level, 41,208,000, was above that of all preceding months, exceeding the previous peak (December 1941) by 128,000 and the total for May 1941 by 2,306,000. These figures do not include work-relief personnel of the WPA, NYA, and CCC, nor the uniformed Army, Navy, Marine, and Coast Guard personnel.

A substantial part of the gain from April to May was in manufacturing industries, where a contraseasonal rise of 77,000 workers reflected continued expansion in war production. Due to increased activity on Government projects, contract construction showed a gain of 92,000, the May employment level exceeding all previous months since the fall of 1929. The other major groups showing expansion in employment were Federal, State, and local government; transportation and public utilities; finance, service, and miscellaneous; and mining. Employment in trade dropped slightly as Government restrictions affected the sale of such items as automobiles, tires, gasoline, electrical appliances, lumber, and plumbing and heating equipment.

The principal factor in the expansion over the year interval was the increase of 1,142,000 in manufacturing industries. A large employment gain was also shown in Federal, State, and local government services (746,000) and smaller increases in contract construction (238,000), transportation and public utilities (198,000), and in the finance, service, and miscellaneous group (69,000). In the remaining two major groups, trade and mining, there were declines of 80,000 and 7,000, respectively, due to the effect of the war program on a number of wholesale and retail lines of trade and a sharp curtailment in oil-well drilling.

Contraction in emergency personnel on work-relief programs amounted to 137,000 between April and May, with the decreases distributed as follows: WPA, 80,700; NYA, 45,000; and CCC enrollees, 11,400.

Industrial and Business Employment

Increases in employment between mid-April and mid-May were reported by 69 of the 157 manufacturing and 8 of the 16 nonmanufacturing industries surveyed by the Bureau of Labor Statistics. Pay-roll increases were reported by 106 of the manufacturing and 12 of the nonmanufacturing industries.

The rise of 0.7 percent over the month in factory employment as a whole was in contrast to a seasonally expected decline of 0.5 percent, while the corresponding increase in weekly pay rolls (2.7 percent, or $9,740,000) compared with a typical rise of only 0.2 or about $700,000

for this time of year. The durable-goods groups of manufacturing industries, in which war production is chiefly concentrated, reported an employment increase of 1.7 percent while the nondurable-goods group showed a decrease of 0.5 percent.

Shortages of materials and lay-offs in plants converting their facilities to war production continued to cause employment reductions in many durable- and nondurable-goods industries, among them being cast-iron pipe, cutlery, hardware, plumbers' supplies, wirework, steam and hot-water heating apparatus and steam fittings, tin cans and other tinware, radios, typewriters, jewelry, lighting equipment, carpets and rugs, and rubber goods. Gains, however, in industries geared to the war effort more than offset these declines. Such strategic war industries as shipbuilding, aircraft, engines, machine tools, machine-tool accessories, electrical machinery, foundries and machine shops, ammunition, and firearms, continued to show sharp employment gains. Among the nondurable-goods industries, seasonal increases were shown by woolen and worsted goods mills, bakeries, meat-packing plants, and plants manufacturing beverages, butter, ice cream, and beet sugar. The canning and preserving industry showed a contraseasonal gain of some 2 percent, while seasonal declines were reported by plants manufacturing fertilizers; cottonseed—oil, cake, and meal; confectionery; and millinery.

The employment and pay-roll levels for all manufacturing industries combined were at the highest on record, the gains over May of last year being 9.8 and 33.1 percent, respectively. The pay-roll increase was nearly four times as large as the employment gain due largely to increased working hours, overtime premiums, and wage-rate increases.

Employment in anthracite mining showed a slight contraseasonal increase from April to May, while bituminous-coal mines reported a less-than-seasonal decline. These changes were coupled with large pay-roll increases, reflecting increased production. Quarries and nonmetallic mines expanded their forces by 2.8 percent, about half the average May increase of the preceding 13 years. Employment increased slightly in metal mining, but declined in crude-petroleum production.

The continuing demand for public transportation facilities was reflected by the increase in the number of workers employed by street railways and busses, this being the fourth consecutive monthly gain, and with but one exception the largest percentage increase in any month during the last 13 years. Electric light and power companies reported a contraseasonal employment drop, while telephone and telegraph offices increased their forces slightly. Among the service industries, increases of a seasonal character were shown by laundries, dyeing and cleaning establishments, and hotels. Brokerage and insurance firms reported decreases. The drop in wholesale trade employment was greater than usual for May, caused largely by contraseasonal decreases in many lines as war conditions and resulting Government restrictions affected the sale of such items as automobiles, tires, petroleum and gasoline, electrical appliances, radios, plumbing and heating equipment, furniture and housefurnishings, and paper products. These factors also affected similar lines of retail trade. Employment in retail food, general merchandise, and fuel and ice establishments, however, increased over the month interval, the net change for retail trade as a whole being a very slight decrease.

A preliminary report of the Interstate Commerce Commission for class I steam railroads showed an employment increase of 2.4 percent between April and May, the total number employed in May being 1,270,401. Corresponding pay-roll figures for May were not available when this report was prepared. For April they were $233,920,115, an increase of $2,452,834 over March. The increase occured despite the fact that the April pay-roll covered only 30 days while the March total covered 31 days.

Hours and earnings.—The average hours worked per week by manufacturing wage earners were 42.6 in May, a gain of 0.5 percent since April. The corresponding average hourly earnings were 83.1 cents, an increase of 1.5 percent over the preceding month. The average weekly earnings of factory wage earners (both full- and part-time combined) were $37.40, a gain of 2.0 percent since April. All of the 16 nonmanufacturing industries regularly surveyed reported increases in average weekly earnings. Of the 14 nonmanufacturing industries for which man-hour information is available, 10 showed increases in average hours worked per week and 13 in average hourly earnings.

TABLE 1.—*Employment, Pay Rolls, and Earnings in All Manufacturing Industries Combined and in Nonmanufacturing Industries, May and April 1942 and May 1941*

[Preliminary]

Industry	Employment index			Pay-roll index			Average weekly earnings		
	May 1942	April 1942	May 1941	May 1942	April 1492	May 1941	May 1942	April 1942	May 1941
	(*1923–25=100*)			(*1923–250=100*)					
All manufacturing industries combined	137.1	136.1	124.9	191.8	186.7	144.1	$37.40	$36.60	$30.78
	(*1935–39=100*)			(*1935–39=100*)					
Class I steam railroads [1]	124.5	121.5	110.3	[2]	[2]	[2]	[2]	[2]	[2]
Coal mining:	(*1929=100*)			(*1929=100*)					
Anthracite	48.4	47.8	48.6	51.3	44.7	33.4	34.76	30.57	22.59
Bituminous	93.3	93.6	87.9	122.5	118.5	103.4	34.73	33.46	31.31
Metalliferous mining	82.0	81.9	77.1	100.9	99.1	81.5	38.57	37.93	33.28
Quarrying and nonmetallic mining	51.7	50.3	51.0	62.6	58.1	53.2	30.69	29.28	26.30
Crude-petroleum production	58.5	58.8	60.3	63.2	63.2	58.6	39.54	39.34	35.54
Public utilities:									
Telephone and telegraph	91.2	91.2	84.6	124.6	122.2	110.5	33.36	32.73	31.91
Electric light and power	88.0	88.9	92.2	113.3	113.5	109.6	39.16	38.82	36.32
Street railways and busses	73.2	72.1	68.9	86.8	84.4	72.7	38.72	38.25	34.36
Trade:									
Wholesale	91.2	92.7	92.2	91.9	92.2	84.6	35.03	34.57	31.90
Retail	94.2	94.3	96.1	93.9	93.6	91.5	23.08	23.00	21.94
Hotels (year-round) [3]	95.6	95.2	96.3	95.0	93.5	87.9	17.11	16.91	15.77
Laundries	113.8	110.3	108.3	113.9	108.6	98.7	20.92	20.59	19.02
Dyeing and cleaning	127.8	121.3	120.6	113.3	105.7	96.1	24.64	24.20	22.04
Brokerage [4]	−3.9	−4.0	−12.8	−3.5	−3.3	−8.9	40.88	40.66	38.58
Insurance [4]	−.8	−.4	+(5)	−.6	−.6	+4.5	38.20	38.10	37.55
Building construction [4]	−.2	+5.4	−11.6	+5.0	+7.7	+5.9	41.75	39.10	34.87
Water transportation [6]	74.1	73.6	81.3	+9.2	+13.5	(5)	[2]	[2]	[2]

[1] Preliminary; source—Interstate Commerce Commission.
[2] Not available.
[3] Cash payments only; the additional value of board, room, and tips cannot be computed.
[4] Indexes of employment and pay rolls not available. Percentage changes from April to May 1942, March to April 1942, and May 1941 to May 1942 substituted.
[5] Less than 1 tenth of 1 percent.
[6] Based on estimates prepared by the U. S. Maritime Commission covering steam and motor merchant vessels of 1,000 gross tons or over in deep-sea trades only. Pay-roll data include war bonuses and value of subsistence and lodging. Pay-roll indexes on 1929 base not available. Percentage changes from April to May 1942, March to April 1942, and May 1941 to May 1942 substituted.

Wage-rate increases averaging 8.3 percent and affecting 351,551 factory wage earners were reported by 1,294 plants out of a reporting sample of approximately 39,000 plants with about 8,000,000 workers. The largest number of workers affected were in the cotton goods, men's clothing, machine tools, aircraft, boot and shoe, and paper and pulp industries. Scattered wage-rate increases were reported among the nonmanufacturing industries surveyed, the public utilities group reporting the largest numbers of workers affected.

Employment and pay-roll indexes and average weekly earnings for April and May 1942 and May 1941 are given where available in table 1 for all manufacturing industries combined, selected nonmanufacturing industries, water transportation, and class I steam railroads.

Public Employment

Employment in the Federal executive service increased 55,000 persons during May: 7,400 inside the District of Columbia and 47,500 outside. During May, total employment in the Federal executive service was 2,067,000, and pay rolls were $336,568,000.

Federally-financed construction continued to expand sharply during May, requiring increased employment and pay rolls of 193,000 persons and $42,417,000. During the month ending May 15, all construction programs required 1,564,000 workers; of these, however, only 239,000 (15 percent) were hired directly by the Federal Government. The others were employed by contractors or subcontractors.

War construction, not including housing, employed 196,000 additional workers during May, reaching a total of 1,418,000 persons and constituting 91 percent of the total number employed on Federally-financed construction. Expansion during May was concentrated mainly on the construction of ships, nonresidential buildings, and streets and roads.

Employment on public housing projects showed a decline during the month ending May 15.

Work-relief programs operated during May on a greatly curtailed basis. For the WPA, the personnel decline of 80,700 (9 percent) reflected only the usual seasonal pattern of curtailed operations toward the close of the fiscal year. For the NYA, however, the sharp decline of 21,400 persons on the student-work program and 24,000 on the out-of-school work program demonstrated the influence of other than seasonal factors. The CCC reduced personnel in May by 12,300 persons, of whom 11,400 were enrollees. During the past year all work-relief programs dropped a total of 1,356,000 names from the rolls.

A summary of employment and pay-roll data in the regular Federal services and on construction and work-relief projects financed wholly or partially from Federal funds is given in table 2.

TABLE 2.—*Employment and Pay Rolls in Regular Federal Services and on Projects Financed Wholly or Partially from Federal Funds, May 1941, April and May 1942*

[Subject to revision]

Class	Employment			Pay rolls		
	May 1942	April 1942	May 1941	May 1942	April 1942	May 1941
Federal services:						
Executive [1]	2,066,873	2,011,848	1,306,333	$336,568,306	$317,207,094	$198,382,389
Judicial	2,653	2,650	2,517	639,383	670,030	642,704
Legislative	6,443	6,457	6,055	1,379,932	1,379,536	1,333,550
Construction projects:						
Financed from regular Federal appropriations [2]	1,464,507	1,278,242	661,310	265,850,010	224,079,575	97,583,387
War	1,354,509	1,174,260	516,618	247,500,321	208,015,158	80,554,152
Other	109,998	103,982	144,692	18,349,689	16,064,417	17,029,235
Public housing [3]	33,835	42,734	100,103	5,320,775	5,883,337	11,664,570
War public works	4,423	3,516	(4)	462,646	370,283	(4)
Financed by PWA	249	401	10,209	28,929	60,638	1,219,777
Financed by RFC [5]	61,146	46,385	7,831	9,887,093	8,738,818	1,261,547
War	59,458	44,890	5,601	9,528,847	8,419,315	980,240
Other	1,688	1,495	2,230	358,246	319,503	281,307
Work Projects Administration projects	786,000	866,723	1,501,168	51,400,000	57,600,000	89,238,525
War	294,100	305,579	436,787	19,450,000	20,100,000	(6)
Other	491,900	561,144	1,064,381	31,950,000	37,500,000	(6)
National Youth Administration:						
Student-work program	217,000	238,397	463,978	1,566,000	1,647,705	3,400,476
Out-of-school work program	184,000	208,001	400,111	4,843,000	5,162,150	8,222,586
Civilian Conservation Corps	83,575	95,853	261,357	4,688,535	4,892,528	12,242,703

[1] Includes force-account employees also included under construction projects, and supervisory and technical employees also included under CCC.
[2] Includes ship construction.
[3] Includes all Federal housing projects including those formerly under the United States Housing Authority.
[4] Program not in operation.
[5] Includes employees and pay roll of the RFC Mortgage Co.
[6] Break-down not available.

DETAILED REPORTS OF EMPLOYMENT, APRIL 1942

Estimates of Nonagricultural Employment

IN TABLE 1 are given estimates of nonagricultural employment by major groups. The figures for "Total civil nonagricultural employment" and "Civil employees in nonagricultural establishments" are based on the number of nonagricultural "gainful workers," shown by the 1930 Census of Occupations (less the number who were unemployed for 1 week or more at the time of the Census) and on regular reports of employers to the United States Bureau of Labor Statistics and to other Government agencies. The estimates for the individual industry groups are based in large part on industrial Censuses and on the above-mentioned regular reports of employers.

Estimates of "Employees in nonagricultural establishments" by States are given each month in a mimeographed release on employment and pay rolls.

TABLE 1.—*Estimates of Total Nonagricultural Employment by Major Groups*

[In thousands]

Employment groups	April 1942 (preliminary)	March 1942	Change March 1942 to April 1942	April 1941	Change April 1941 to April 1942
Total civil nonagricultural employment [1]	40,804	40,391	+413	38,228	+2,576
Civil employees in nonagricultural establishments [2]	34,661	34,248	+413	32,085	+2,576
Manufacturing	12,928	12,844	+84	11,684	+1,244
Mining	860	860	0	564	+296
Contract construction [3]	1,875	1,738	+137	1,775	+100
Transportation and public utilities	3,344	3,277	+67	3,113	+231
Trade	6,658	6,711	−53	6,792	−134
Finance, service, and miscellaneous	4,264	4,195	+69	4,174	+90
Federal, State, and local government	4,732	4,623	+109	3,983	+749

[1] Excludes employees on WPA and NYA projects and enrollees in CCC camps. Includes proprietors, firm members, self-employed persons, casual workers, and domestic servants. Includes allowance for adjustment of factory and trade totals to preliminary 1939 Census figures.

[2] Excludes all of the groups omitted from "Total civil nonagricultural employment," as well as proprietors, firm members, self-employed persons, casual workers, and domestic servants.

[3] Includes employees of construction contractors only. Does not include "force account" construction workers, that is those employed directly by other classes of employers.

Industrial and Business Employment

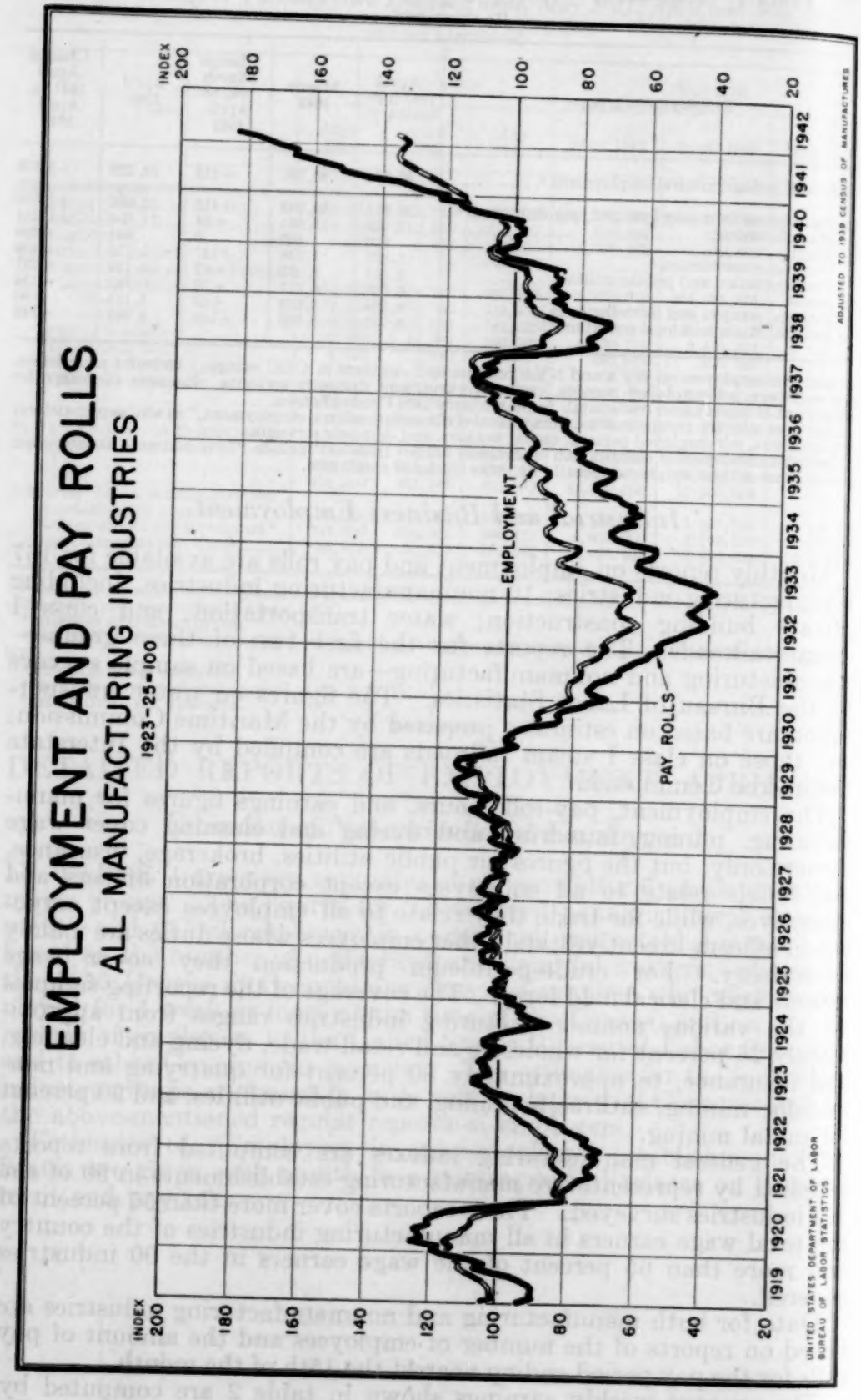
Monthly reports on employment and pay rolls are available for 157 manufacturing industries; 16 nonmanufacturing industries, including private building construction; water transportation; and class I steam railroads. The reports for the first two of these groups—manufacturing and nonmanufacturing—are based on sample surveys by the Bureau of Labor Statistics. The figures on water transportation are based on estimates prepared by the Maritime Commission, and those on class I steam railroads are compiled by the Interstate Commerce Commission.

The employment, pay-roll, hours, and earnings figures for manufacturing, mining, laundries, and dyeing and cleaning cover wage earners only, but the figures for public utilities, brokerage, insurance, and hotels relate to all employees except corporation officers and executives, while for trade they relate to all employees except corporation officers, executives, and other employees whose duties are mainly supervisory. For crude-petroleum production they cover wage earners and clerical field force. The coverage of the reporting samples for the various nonmanufacturing industries ranges from approximately 25 percent for wholesale and retail trade, dyeing and cleaning, and insurance, to approximately 80 percent for quarrying and nonmetallic mining, anthracite mining, and public utilities, and 90 percent for metal mining.

The general manufacturing indexes are computed from reports supplied by representative manufacturing establishments in 90 of the 157 industries surveyed. These reports cover more than 55 percent of the total wage earners in all manufacturing industries of the country and more than 65 percent of the wage earners in the 90 industries covered.

Data for both manufacturing and nonmanufacturing industries are based on reports of the number of employees and the amount of pay rolls for the pay period ending nearest the 15th of the month.

The average weekly earnings shown in table 2 are computed by dividing the weekly pay rolls in the reporting establishments by the


EMPLOYMENT AND PAY ROLLS
ALL MANUFACTURING INDUSTRIES
1923-25-100
INDEX
200
180
160
140
120
100
80
60
40
20
EMPLOYMENT
PAY ROLLS
1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942
ADJUSTED TO 1939 CENSUS OF MANUFACTURES
UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

total number of full- and part-time employees reported. As not all reporting establishments supply information on man-hours, average hours worked per week and average hourly earnings are necessarily based on data furnished by a slightly smaller number of reporting firms. Because of variation in the size and composition of the reporting sample, the average hours per week, average hourly earnings, and average weekly earnings shown may not be strictly comparable from month to month. The sample, however, is believed to be sufficiently adequate in virtually all instances to indicate the general movement of earnings and hours over the period shown.

EMPLOYMENT AND PAY-ROLL INDEXES, AVERAGE HOURS AND EARNINGS

Employment and pay-roll indexes, as well as average hours worked per week, average hourly earnings, and average weekly earnings for February, March, and April 1942, where available, are presented in table 2. The February and March figures, where given, may differ in some instances from those previously published because of revisions necessitated primarily by the inclusion of late reports. Indexes of employment and pay rolls are given in table 3 for 55 additional manufacturing industries for the months of February, March, and April 1942. These indexes are based on 1939 as 100, and are available in mimeographed form for the period from January 1939 to January 1941, inclusive.

In table 4 indexes of employment and pay rolls are given for all manufacturing industries combined, for the durable- and nondurable-goods groups of manufacturing industries, and for each of 13 nonmanufacturing industries, by months, from April 1941 to April 1942, inclusive. The chart on page 182 indicates the trend of factory employment and pay rolls from January 1919 to April 1942.

TABLE 2.—*Employment, Pay Rolls, Hours, and Earnings in Manufacturing and Nonmanufacturing Industries*

MANUFACTURING

[Indexes are based on 3-year average, 1923–25=100. For "all manufacturing," "durable goods," "nondurable goods," and "aluminum manufactures," they have been adjusted to preliminary 1939 Census figures. The indexes for all other manufacturing groups and industries have been adjusted to 1937 Census figures, except as otherwise noted, and are not comparable to indexes published in pamphlets prior to August 1939. Comparable series available upon request.]

Industry	Employment index			Pay-roll index			Average weekly earnings [1]			Average hours worked per week [1]			Average hourly earnings [1]		
	April 1942	March 1942	February 1942	April 1942	March 1942	February 1942	April 1942	March 1942	February 1942	April 1942	March 1942	February 1942	April 1942	March 1942	February 1942
													Cents	*Cents*	*Cents*
All manufacturing [2]	**136.1**	**135.0**	**133.8**	**186.6**	**182.8**	**178.3**	**$36.63**	**$36.10**	**$35.71**	**42.4**	**42.5**	**42.2**	**81.9**	**80.9**	**80.3**
Durable goods [2]	**149.8**	**147.4**	**145.1**	**223.9**	**217.2**	**210.6**	**42.57**	**41.92**	**41.53**	**44.7**	**44.7**	**44.4**	**91.0**	**89.9**	**89.3**
Nondurable goods [2]	**123.0**	**123.2**	**123.0**	**144.9**	**144.3**	**142.1**	**27.82**	**27.70**	**27.35**	**39.7**	**39.8**	**39.7**	**71.4**	**70.7**	**70.2**
Durable goods															
Iron and steel and their products, not including machinery	**135.3**	**135.7**	**135.9**	**181.3**	**181.1**	**178.3**	**38.97**	**38.88**	**38.32**	**42.2**	**42.6**	**42.1**	**92.6**	**91.6**	**90.9**
Blast furnaces, steel works, and rolling mills	150.9	150.0	149.4	192.9	193.5	190.6	40.22	40.67	40.23	40.4	41.1	40.7	99.6	99.0	98.8
Bolts, nuts, washers, and rivets	171.3	169.0	169.0	282.8	273.7	270.0	39.68	38.73	38.19	45.2	45.0	44.8	87.3	86.1	85.2
Cast-iron pipe	98.0	98.0	97.4	129.7	126.3	124.5	31.94	30.92	30.66	42.6	42.1	41.6	74.5	73.0	73.1
Cutlery (not including silver and plated cutlery) and edge tools	131.6	136.4	134.0	179.2	181.4	179.4	35.62	34.66	34.93	46.2	45.8	46.0	78.0	76.3	76.8
Forgings, iron and steel	128.0	125.0	123.0	238.2	221.7	215.9	50.60	48.00	47.55	49.4	48.1	48.0	102.2	100.0	99.4
Hardware	92.3	94.8	94.3	136.1	136.8	132.0	35.89	35.11	34.08	45.9	46.0	45.7	78.3	76.5	74.7
Plumbers' supplies [3]	80.9	89.0	92.6	92.5	102.1	105.2	33.00	33.12	32.84	39.5	40.1	40.4	83.5	82.4	81.2
Stamped and enameled ware	206.4	211.5	209.2	305.0	308.7	299.6	34.51	34.13	33.58	43.8	43.8	43.5	79.6	78.5	77.5
Steam and hot-water heating apparatus and steam fittings	121.6	123.2	123.1	174.2	173.0	168.6	42.81	41.85	40.90	46.5	46.4	46.0	92.3	90.4	89.0
Stoves [4]	90.4	91.8	93.8	105.8	104.9	103.4	33.09	32.35	31.23	41.0	41.0	40.3	80.8	79.2	77.7
Structural and ornamental metalwork [4]	114.0	110.4	107.2	145.9	140.0	133.3	41.02	40.65	39.95	45.9	45.3	44.9	89.2	89.9	89.2
Tin cans and other tinware	111.2	115.9	130.9	145.4	150.0	164.6	29.21	28.97	28.16	40.0	40.5	39.8	73.8	72.0	70.9
Tools (not including edge tools, machine tools, files, and saws)	154.6	154.9	153.0	236.6	233.8	224.1	37.64	37.32	36.23	47.4	47.0	46.7	80.0	79.4	77.6
Wirework	155.3	161.3	169.4	234.6	234.9	242.1	36.71	35.41	34.88	44.7	43.9	43.3	82.3	80.8	80.7
Machinery, not including transportation equipment	**197.7**	**193.9**	**189.7**	**315.3**	**307.2**	**294.8**	**44.25**	**43.83**	**43.06**	**47.5**	**47.8**	**47.3**	**92.4**	**91.3**	**90.6**
Agricultural implements (including tractors)	167.4	169.1	166.2	250.1	250.4	241.1	40.93	40.69	39.82	42.9	42.7	42.5	95.9	95.4	94.0
Cash registers, adding machines, and calculating machines	174.9	176.8	177.7	262.4	261.3	259.6	46.71	46.03	45.49	47.2	47.0	47.1	99.6	98.4	97.6
Electrical machinery, apparatus, and supplies	(5)	(5)	(5)	(5)	(5)	(5)	41.80	41.52	41.10	45.8	45.8	45.6	91.3	90.6	90.3
Engines, turbines, water wheels, and windmills	(5)	(5)	(5)	(5)	(5)	(5)	53.62	54.43	52.91	48.1	48.7	48.5	111.6	112.0	109.3
Foundry and machine-shop products	160.3	157.3	154.8	234.9	227.3	219.3	43.49	42.90	41.98	48.2	48.6	47.6	90.0	88.1	87.9
	(5)	(5)	(5)	(5)	(5)	(5)	50.79	51.43	50.87	53.9	54.6	54.9	94.4	94.3	92.8
	(5)	210.4	206.5	292.2	280.7	279.0	34.00	33.59	32.84	44.6	44.8	43.9	76.4	75.1	74.8
										48.9	49.0	48.9	80.5	80.2	79.1

Machine tools	(5)	(5)	(5)	(5)	(5)	(5)	50.79	51.43	50.87	53.9	54.6	54.9	94.4	94.3	92.8
Radios and phonographs	208.9	210.4	206.5	292.2	290.7	279.0	34.00	33.59	32.84	44.6	44.8	43.9	76.4	75.1	74.8
Textile machinery and parts [4]	110.8	110.5	110.7	157.5	157.2	155.1	39.55	39.40	38.79	48.9	49.0	48.9	80.5	80.2	79.1
Typewriters and parts	125.7	147.1	150.7	171.0	212.6	222.2	33.35	35.43	36.16	42.8	45.2	46.5	77.7	78.4	77.7
Transportation equipment [6]	**236.5**	**224.1**	**215.5**	**376.0**	**349.7**	**336.6**	**49.77**	**49.01**	**49.31**	**47.0**	**46.6**	**46.2**	**105.5**	**105.1**	**106.1**
Aircraft	(5)	(5)	(5)	(5)	(5)	(5)	45.94	44.98	44.80	47.2	47.7	47.7	96.6	95.1	94.8
Automobiles [7]	84.1	86.2	88.8	131.3	132.1	135.0	50.29	49.34	48.92	44.2	43.5	42.4	113.3	113.6	115.8
Cars, electric- and steam-railroad	(5)	(5)	(5)	(5)	(5)	(5)	42.15	41.38	40.82	43.1	42.9	43.1	97.7	96.5	94.7
Locomotives [8]	(5)	(5)	(5)	(5)	(5)	(5)	50.91	50.56	49.69	49.1	49.1	48.8	103.8	103.0	101.7
Shipbuilding [9]	(5)	(5)	(5)	(5)	(5)	(5)	53.30	52.35	53.38	49.2	48.4	48.6	108.0	107.8	109.1
Nonferrous metals and their products [4]	**144.1**	**147.4**	**145.9**	**207.9**	**208.5**	**202.3**	**39.86**	**39.13**	**38.47**	**44.2**	**44.1**	**43.8**	**89.7**	**88.4**	**87.2**
Aluminum manufactures [10]	(5)	(5)	(5)	(5)	(5)	(5)	41.37	40.34	39.20	45.0	44.7	44.2	92.5	90.4	88.9
Brass, bronze, and copper products	(5)	(5)	(5)	(5)	(5)	(5)	44.42	44.02	43.62	45.3	45.4	45.8	98.2	97.0	95.7
Clocks and watches and time-recording devices	111.9	111.0	109.7	167.6	160.1	154.4	33.18	32.05	31.28	44.5	43.8	43.0	74.7	73.2	72.8
Jewelry	99.4	105.8	107.2	108.9	113.9	105.1	29.45	28.93	26.27	42.2	43.7	40.2	69.2	66.7	65.3
Lighting equipment	91.9	98.9	99.7	106.2	109.1	109.8	36.20	34.32	34.21	44.2	42.1	42.4	81.9	81.6	80.7
Silverware and plated ware	66.0	77.7	77.7	79.8	95.4	90.5	35.25	35.77	33.92	44.1	45.2	43.5	80.8	79.9	78.5
Smelting and refining—copper, lead, and zinc	101.5	101.4	101.2	126.7	127.6	126.8	35.18	35.45	35.29	40.2	40.1	40.1	87.9	88.4	87.9
Lumber and allied products	**73.5**	**74.1**	**74.3**	**87.8**	**86.7**	**86.0**	**25.68**	**25.34**	**24.94**	**40.4**	**40.5**	**40.5**	**63.3**	**62.0**	**61.3**
Furniture	97.2	101.1	102.4	113.9	116.2	115.8	27.64	27.11	26.54	41.5	41.4	41.0	67.1	65.9	65.1
Lumber:															
Millwork [4]	70.6	70.5	71.0	70.1	67.9	67.6	27.58	26.76	26.38	41.9	41.6	41.1	65.6	64.2	64.1
Sawmills	64.6	64.2	64.0	75.0	72.9	71.9	23.96	23.47	23.20	39.5	39.5	39.7	60.7	59.4	58.4
Stone, clay, and glass products	**95.4**	**94.3**	**93.9**	**105.0**	**103.7**	**102.3**	**30.06**	**30.03**	**29.77**	**38.9**	**39.0**	**38.8**	**76.9**	**76.2**	**75.9**
Brick, tile, and terra cotta	70.2	68.3	67.6	71.1	68.6	66.7	26.59	26.52	26.10	39.2	38.9	38.6	68.9	68.5	67.5
Cement	79.9	77.9	76.3	91.0	88.5	85.1	32.22	32.15	31.55	40.4	40.7	40.2	79.7	79.0	78.5
Glass	125.8	126.1	126.1	165.5	165.4	165.6	32.38	32.14	32.15	38.5	39.0	38.8	83.9	82.6	83.0
Marble, granite, slate, and other products	39.8	38.7	38.5	32.9	30.5	29.9	29.13	27.83	27.58	38.3	37.7	37.9	77.5	74.4	74.0
Pottery	119.6	119.9	120.7	134.4	137.1	135.8	28.46	29.01	28.47	38.2	38.5	38.5	73.9	74.1	73.6
Nondurable goods															
Textiles and their products	**113.1**	**113.5**	**113.0**	**129.0**	**129.2**	**126.9**	**23.41**	**23.28**	**22.94**	**39.1**	**39.1**	**38.9**	**59.9**	**59.6**	**59.2**
Fabrics	105.2	105.0	104.9	126.8	124.8	123.7	23.24	22.91	22.73	40.1	40.1	40.1	58.3	57.6	57.4
Carpets and rugs	70.6	77.1	80.6	76.2	81.2	84.9	29.93	29.19	29.21	38.8	38.0	38.4	77.2	77.0	76.3
Cotton goods	114.1	113 2	112.9	148.6	146.4	145.1	21.07	20.92	20.80	41.0	41.0	40.9	51.5	51.1	51.0
Cotton smallwares	111.8	111.1	109.0	156.2	148.0	142.7	27.28	26.08	25.67	43.6	43.3	43.0	62.9	60.5	59.9
Dyeing and finishing textiles	138.2	138.3	136.8	157.0	151.7	148.8	27.78	26.66	26.30	42.7	41.8	41.5	65.0	63.7	63.3
Hats, fur-felt	68.3	71.6	73.2	65.9	73.1	80.7	26.75	28.21	30.41	31.5	34.2	36.8	83.8	82.3	83.4
Hosiery	125.2	128.5	130.2	149.0	154.0	157.1	21.10	21.10	21.21	35.5	36.5	37.1	59.1	58.0	57.7
Knitted outerwear	82.1	80.1	78.9	85.9	82.9	79.4	21.30	21.25	20.74	38.6	38.5	38.3	54.6	54.4	53.3
Knitted underwear	88.9	88.0	86.3	110.7	107.0	102.0	20.92	20.52	19.98	39.8	39.4	38.8	52.1	51.5	50.8
Knitted cloth	155.8	153.4	150.1	171.2	163.9	156.9	25.28	24.71	23.99	41.3	41.1	40.3	59.9	59.0	59.1
Silk and rayon goods	63.0	62.3	61.6	70.5	67.8	65.9	23.40	22.74	22.32	40.5	40.5	40.2	57.8	56.1	55.6
Woolen and worsted goods [4]	104.1	103.0	103.5	127.0	122.8	121.3	28.31	27.63	27.13	40.0	39.5	39.0	71.0	70.0	69.7
Wearing apparel	126.0	127.7	126.4	125.3	130.1	125.5	23.89	24.30	23.52	37.1	37.4	36.6	63.0	63.3	62.9
Clothing, men's	123.5	123.5	121.7	121.7	123.3	117.2	25.05	25.47	24.45	37.6	38.0	37.0	66.7	66.6	66.1
Clothing, women's [4]	166.0	169.5	168.4	152.3	162.6	158.9	24.97	26.10	25.55	37.0	37.1	36.4	63.7	65.4	65.4

See footnotes at end of table.

TABLE 2.—*Employment, Pay Rolls, Hours, and Earnings in Manufacturing and Nonmanufacturing Industries*—Continued

MANUFACTURING—Continued

[Indexes are based on 3-year average, 1923-1925=100. For "all manufacturing," "durable goods," "nondurable goods," and "aluminum manufactures," they have been adjusted to preliminary 1939 Census figures. The indexes for all other manufacturing groups and industries have been adjusted to 1937 Census figures, except as otherwise noted, and are not comparable to indexes published in pamphlets prior to August 1939. Comparable series available upon request.]

Industry	Employment index			Pay-roll index			Average weekly earnings [1]			Average hours worked per week [1]			Average hourly earnings [1]		
	April 1942	March 1942	February 1942	April 1942	March 1942	February 1942	April 1942	March 1942	February 1942	April 1942	March 1942	February 1942	April 1942	March 1942	February 1942
Nondurable goods—Continued															
Textiles and their products—Continued															
Wearing apparel—Continued													*Cents*	*Cents*	*Cents*
Corsets and allied garments	116.2	116.9	116.7	159.1	161.1	157.6	$22.88	$22.85	$22.38	39.6	40.0	39.7	57.9	56.9	56.0
Men's furnishings	113.5	115.0	113.6	139.0	140.5	139.6	18.36	18.34	18.50	35.2	35.6	36.2	51.6	50.7	50.2
Millinery	78.6	86.2	83.8	66.4	82.7	75.6	25.80	29.29	27.54	32.4	34.4	34.2	72.5	73.5	71.0
Shirts and collars	132.5	132.9	133.4	159.1	152.0	148.8	19.06	18.16	17.77	37.5	37.1	36.6	51.2	49.2	48.7
Leather and its manufactures	**100.5**	**101.9**	**100.2**	**115.6**	**117.2**	**113.3**	**26.50**	**26.55**	**26.16**	**39.3**	**40.0**	**39.9**	**67.8**	**66.3**	**65.8**
Boots and shoes	97.4	98.6	96.6	110.4	112.2	107.6	25.21	25.32	24.86	38.8	39.7	39.5	64.9	63.3	62.9
Leather [4]	95.7	97.7	97.4	123.2	123.8	122.5	32.26	31.88	31.65	40.9	40.9	41.1	79.2	77.9	77.4
Food and kindred products	**132.8**	**131.6**	**133.5**	**153.0**	**150.5**	**150.7**	**29.14**	**28.98**	**28.56**	**40.4**	**40.7**	**40.5**	**73.2**	**72.3**	**71.8**
Baking	149.5	150.3	150.0	160.2	160.6	159.6	29.64	29.48	29.41	41.8	42.2	42.3	70.6	69.8	69.6
Beverages	298.8	289.1	283.8	397.6	377.8	356.4	38.97	38.27	36.76	41.3	40.9	39.6	95.3	94.4	93.6
Butter [4]	111.2	102.8	97.4	109.6	102.9	97.5	25.60	26.08	26.12	45.7	46.5	46.5	55.2	55.4	55.8
Canning and preserving	103.6	97.0	111.6	117.2	109.0	128.8	21.67	21.42	21.96	35.7	36.5	38.0	61.4	59.8	58.7
Confectionery	87.9	92.6	90.8	103.0	108.9	104.1	22.52	22.55	22.00	38.9	40.0	39.1	58.0	56.9	56.5
Flour [4]	77.7	78.7	79.9	85.5	86.7	91.2	29.38	29.44	30.53	42.9	43.0	44.0	67.6	67.5	68.6
Ice cream	77.6	71.6	69.0	73.5	69.2	66.7	31.97	32.60	32.69	45.5	46.1	44.8	70.0	70.2	72.1
Slaughtering and meat packing	134.0	134.0	137.8	162.3	159.7	162.6	31.49	31.04	30.70	39.5	39.2	39.0	80.0	79.1	78.6
Sugar, beet	46.0	41.6	42.7	60.7	56.1	55.3	34.52	35.28	33.90	38.7	40.2	38.2	90.9	91.8	93.4
Sugar refining, cane	94.3	91.9	89.4	91.9	86.3	78.7	27.45	26.58	24.93	37.9	36.6	35.2	72.3	72.7	70.8
Tobacco manufactures	**64.4**	**65.4**	**65.5**	**73.8**	**70.6**	**72.3**	**20.91**	**19.71**	**20.05**	**37.6**	**36.6**	**37.0**	**55.4**	**53.7**	**54.4**
Chewing and smoking tobacco and snuff	52.1	52.3	54.7	73.2	70.3	70.4	22.88	21.71	20.84	38.1	36.6	35.7	60.2	59.7	58.8
Cigars and cigarettes	65.9	67.0	66.8	73.8	70.5	72.4	20.55	19.35	19.91	37.5	36.6	37.1	54.9	53.1	53.9
Paper and printing	**121.1**	**121.9**	**123.3**	**133.2**	**134.8**	**135.1**	**33.42**	**33.69**	**33.45**	**39.6**	**40.1**	**40.0**	**86.8**	**86.2**	**85.4**
Boxes, paper	131.3	133.7	135.2	173.1	176.4	177.3	26.18	26.20	26.13	40.1	40.6	40.6	65.6	65.0	64.7
Paper and pulp	129.8	129.7	129.6	172.1	175.6	174.2	32.84	33.50	33.28	42.7	43.6	43.6	76.9	76.9	76.4
Printing and publishing:															
Book and job	99.6	100.9	104.9	96.3	97.6	99.9	33.74	33.70	33.20	39.4	39.6	39.6	86.2	85.7	84.3
Newspapers and periodicals [3]	114.6	115.0	114.5	114.0	113.9	113.3	40.17	40.16	40.14	35.8	36.2	36.1	110.8	110.3	109.5
Chemical, petroleum, and coal products [4]	158.8	158.4	154.9	223.0	219.3	212.3	37.03	36.66	36.45	40.9	40.7	40.6	90.0	88.9	88.1
	131.6	130.8	129.6	179.0	179.6	178.3	41.94	42.57	42.64	38.1	38.7	38.8	110.5	110.4	110.4
							35.62	34.89	34.57	41.6	41.3	41.1	84.4	83.0	81.9
													97.3	96.2	95.0

Newspapers and periodicals [9]	114.6	115.0	114.5	114.0	113.9	113.3	33.74 40.17	33.70 40.16	33.20 40.14	39.4 35.8	39.6 36.2	39.6 36.1	86.2 110.8	85.7 110.3	84.3 109.5
Chemical, petroleum, and coal products [4]	**158.8**	**158.4**	**154.9**	**223.0**	**219.3**	**212.3**	**37.03**	**36.66**	**36.45**	**40.9**	**40.7**	**40.6**	**90.0**	**88.9**	**88.1**
Petroleum refining	131.6	130.8	129.6	179.0	179.6	178.3	41.94	42.57	42.64	38.1	38.7	38.8	110.5	110.4	110.4
Other than petroleum refining [4]	165.3	165.1	161.1	236.5	231.6	222.8	35.62	34.89	34.57	41.6	41.3	41.1	84.4	83.0	81.9
Chemicals	193.2	192.5	188.7	293.2	287.8	279.3	39.90	39.40	39.02	41.0	41.0	41.1	97.3	96.2	95.0
Cottonseed—oil, cake, and meal	79.1	94.0	104.8	85.2	97.9	109.5	17.22	16.77	16.87	44.6	43.7	44.9	38.8	38.2	37.3
Druggists' preparations	156.6	155.8	154.6	203.2	199.6	193.1	29.12	28.72	28.00	39.9	39.8	40.0	68.8	68.6	66.8
Explosives	(5)	(5)	(5)	(5)	(5)	(5)	44.67	43.68	44.21	46.0	44.9	45.2	97.1	97.3	97.7
Fertilizers [4]	155.1	165.6	153.1	179.8	175.7	154.7	20.26	18.86	18.15	40.7	39.5	38.5	50.1	48.0	47.1
Paints and varnishes	138.7	140.7	141.0	177.1	179.3	176.6	35.34	35.25	34.66	41.8	42.1	41.8	84.7	83.9	83.1
Rayon and allied products	310.4	313.2	312.6	387.9	394.4	391.3	32.14	32.15	31.95	39.5	39.6	39.3	80.8	81.2	81.2
Soap	91.8	92.6	91.6	136.9	137.3	135.1	35.18	34.99	34.80	40.9	41.1	40.6	86.1	85.2	85.7
Rubber products	**95.2**	**98.9**	**98.9**	**130.3**	**132.3**	**127.4**	**36.80**	**36.10**	**34.73**	**41.1**	**40.6**	**39.7**	**90.4**	**89.4**	**88.2**
Rubber boots and shoes	73.5	75.0	75.2	92.5	99.3	95.8	28.53	30.03	28.91	38.2	40.9	40.1	74.7	73.4	72.1
Rubber tires and inner tubes	74.1	74.2	73.5	106.3	106.3	101.7	41.90	41.71	40.23	39.1	38.8	37.6	107.1	107.8	107.4
Rubber goods other	159.4	172.1	173.6	224.8	229.1	222.2	34.48	32.27	31.01	44.3	42.3	41.7	78.2	76.7	74.7

NONMANUFACTURING

													Cents	*Cents*	*Cents*
Coal mining:															
Anthracite [11 12]	47.9	48.5	48.8	44.7	50.9	49.6	$30.58	$34.45	$33.23	30.5	34.6	33.8	99.6	98.9	99.0
Bituminous [11]	93.3	93.8	94.5	118.4	116.9	118.2	33.82	33.20	33.10	32.0	31.6	31.6	106.4	106.2	105.8
Metalliferous mining [13]	**82.5**	**81.9**	**81.0**	**97.0**	**99.1**	**98.4**	**37.28**	**38.37**	**38.31**	**42.9**	**44.4**	**44.4**	**87.0**	**86.5**	**86.3**
Quarrying and nonmetallic mining	**50.4**	**47.7**	**46.7**	**57.9**	**54.4**	**52.0**	**29.32**	**29.13**	**28.40**	**42.3**	**42.3**	**41.6**	**69.8**	**69.3**	**68.6**
Crude-petroleum production [14]	**59.1**	**59.7**	**60.6**	**62.8**	**62.6**	**64.8**	**38.77**	**38.20**	**39.00**	**38.6**	**37.6**	**37.7**	**97.5**	**99.1**	**100.2**
Public utilities:															
Telephone and telegraph [15 16]	91.0	90.5	90.3	122.0	121.8	120.9	32.77	32.91	32.76	40.1	39.9	39.8	82.2	82.8	82.7
Electric light and power [15 16]	89.2	89.6	90.5	113.6	113.5	113.7	38.68	38.43	38.23	40.4	39.6	39.6	95.5	96.8	96.2
Street railways and busses [15 16 17]	72.5	71.2	70.7	84.5	84.7	83.7	38.10	38.86	38.58	47.1	48.3	47.9	79.6	79.5	79.2
Trade:															
Wholesale [15 18]	92.4	93.9	94.3	92.0	93.9	93.7	34.79	34.93	34.72	41.3	41.5	41.2	84.7	84.3	84.6
Retail [15 16]	93.9	94.4	94.0	93.2	93.7	93.9	23.03	23.04	23.29	41.9	42.2	42.4	60.1	59.6	59.9
Food [16]	112.8	113.7	113.8	112.0	113.0	114.5	25.96	25.95	25.48	42.2	41.3	41.7	60.2	59.5	59.4
General merchandising [15 16]	107.6	105.9	103.2	106.5	105.2	104.1	19.41	19.45	19.88	37.8	38.1	38.4	50.9	50.7	50.7
Apparel [16]	94.8	92.7	85.0	94.4	92.2	86.0	23.35	23.32	23.61	37.4	37.6	38.6	62.1	61.8	61.2
Furniture [16]	68.1	70.2	72.2	71.2	72.6	72.4	32.02	31.84	31.33	44.4	44.4	44.3	76.3	76.0	74.2
Automotive [16]	59.4	63.4	67.9	62.6	65.7	69.8	31.37	30.84	30.80	47.7	47.7	48.1	66.2	64.9	64.2
Lumber [16]	73.1	72.2	72.9	79.0	76.3	77.0	29.91	29.27	29.25	42.7	42.3	42.3	71.6	70.8	70.6
Hotels (year-round) [11 18 19]	**95.0**	**93.5**	**94.1**	**93.5**	**91.6**	**92.6**	**16.94**	**16.87**	**16.94**	**45.1**	**45.6**	**45.8**	**37.3**	**36.7**	**36.9**
Laundries [11]	**110.2**	**107.9**	**107.6**	**108.4**	**104.3**	**102.5**	**20.52**	**20.16**	**19.78**	**43.4**	**43.2**	**42.9**	**47.6**	**47.1**	**46.4**
Dyeing and cleaning [11]	**121.2**	**113.8**	**109.5**	**105.6**	**92.7**	**85.6**	**24.25**	**22.67**	**21.81**	**44.7**	**43.2**	**41.9**	**55.7**	**54.0**	**53.7**
Brokerage [15 20 21]	**−3.5**	**−2.4**	**−1.8**	**−4.0**	**−2.1**	**−3.6**	**39.97**	**40.20**	**40.33**	(22)	(22)	(22)	(22)	(22)	(22)
Insurance [15 20]	**−.5**	**−.1**	**−.1**	**−.8**	**−.5**	**−.4**	**38.23**	**38.33**	**38.91**	(22)	(22)	(22)	(22)	(22)	(22)
Building construction [20]	**+5.4**	**+1.8**	**−2.9**	**+7.7**	**+5.4**	**−2.0**	**39.10**	**38.29**	**37.17**	**35.4**	**35.0**	**33.9**	**110.5**	**109.4**	**109.6**
Water transportation [23]	**73.6**	**75.7**	**76.3**	**+13.5**	**+2.4**	**+2.6**	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)
Class I steam railroads [24]	**121.5**	**116.6**	**114.5**	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)

Footnotes on following page.

[1] A bulletin giving averages by years, 1932 to 1940, inclusive, and by months, January 1932 to November 1941, inclusive, available on request. Average hours and average hourly earnings are computed from data supplied by a smaller number of establishments than average weekly earnings, as not all reporting firms furnish man-hours. The figures are not strictly comparable from month to month because of changes in the size and composition of the reporting sample.

[2] See tables 9, 10, and 11 in the December 1940 issue of "Employment and Pay Rolls" for comparable series back to January 1919 for all manufacturing and back to January 1923 for the durable- and nondurable-goods groups.

[3] See table 7 in the April 1941 issue of "Employment and Pay Rolls" for revised figures from January 1940 to March 1941.

[4] Revisions in the following industries and groups have been made as indicated:

Stoves.—November 1941 average hourly earnings to 75.9 cents. January 1942 employment and pay-roll indexes to 91.8 and 94.4; average weekly earnings, average hours, and average hourly earnings to $29.14, 38.4 hours, and 76.1 cents.

Structural and ornamental metalwork.—December 1941 average hourly earnings to 85.6 cents; January 1942 pay-roll index to 124.9, average weekly earnings and hours to $38.00 and 43.5 hours.

Textile machinery and parts.—August 1941 to January 1942 average weekly hours to 46.4, 47.5, 47.3, 46.4, 48.4, and 48.7; average hourly earnings to 74.6, 75.7, 76.2, 77.0, 78.7, and 79.2 cents.

Transportation equipment.—January 1942 employment and pay-roll indexes to 210.3 and 329.6.

Nonferrous group.—January 1942 employment and pay-roll indexes to 144.5 and 198.8.

Millwork.—December 1941 average weekly and hourly earnings to $26.68 and 62.4 cents; January 1942 employment and pay-roll indexes to 71.5 and 66.1; January weekly and hourly earnings to $25.63 and 63.1 cents.

Woolen and worsted goods.—December 1941 pay-roll index to 133.3; average weekly and hourly earnings to $27.90 and 69.6 cents; January 1942 employment and pay-roll indexes to 108.2 and 129.1; average weekly earnings, hours, and hourly earnings to $27.66, 39.6 hours, and 70.0 cents.

Women's clothing—January 1942 employment and pay-roll indexes to 156.4 and 127.7; average weekly earnings, hours, and hourly earnings to $22.03, 33.6 hours, and 62.7 cents.

Leather.—January 1942 average weekly earnings, hours, and hourly earnings to $31.22, 40.7 hours, and 76.9 cents.

Butter.—January 1942 employment and pay-roll indexes to 97.9 and 93.4; average weekly earnings, hours, and hourly earnings to $24.94, 44.9 hours, and 55.0 cents.

Flour.—January 1942 pay-roll index to 89.6; average weekly earnings and hours to $30.25 and 44.2 hours.

Chemical, petroleum, and coal products.—January 1942 employment and pay-roll indexes to 151.1 and 205.3.

Chemicals other than petroleum refining.—January 1942 employment and pay-roll indexes to 156.5 and 215.8.

Fertilizers.—December 1941 and January 1942 employment indexes to 106.4, 119.9; pay-roll indexes to 106.4, 119.9; average weekly earnings to $18.24, $18.17; average hourly earnings to 50.1 and 49.5 cents; December 1941 average hours to 36.4.

[5] Included in total and group indexes, but not available for publication separately.

[6] Adjusted on basis of a complete employment survey of the aircraft industry made by the Bureau of Labor Statistics for August 1940. Not comparable with previously published indexes from January 1939 to August 1940, inclusive. Comparable figures for this period given in table 9 of the September 1940 issue of "Employment and Pay Rolls."

[7] The indexes for "Automobiles" have been adjusted to 1933 Census figures, but not to later Census figures because of problems involving integrated industries.

[8] See footnote 7 in table 5 of October 1941 "Employment and Pay Rolls" for revised employment and pay-roll indexes, average hours worked per week, average hourly earnings, and average weekly earnings in locomotives, August 1940 to July 1941, inclusive.

[9] *Shipbuilding.*—January 1942 average hours and average hourly earnings revised to 48.1 hours and 108.5 cents. Because of expansion in the reporting sample, average hourly earnings for January 1942 are not comparable with those published for previous months. Comparable December 1941 figure 106.3 cents.

Printing and publishing—Newspapers and periodicals.—Because of expansion in the reporting sample, average hourly earnings are not comparable with those previously published.

[10] See table 8 in Mareh 1941 "Employment and Pay Rolls" pamphlet for revised figures from January 1935 to December 1940, and footnote 11, table 2 in June 1942 Monthly Labor Review for revised figures from January 1941 to December 1941.

[11] Indexes adjusted to 1935 Census. Comparable series back to January 1929 presented in January 1938 issue of pamphlet.

[12] See table 7 of October 1940 "Employment and Pay Rolls" for revised employment and pay-roll indexes, average hours worked per week, average hourly earnings, and average weekly earnings in anthracite mining, February 1940 to September 1940, inclusive.

[13] See table 7 of February 1941 pamphlet for revised figures for metalliferous mining from January 1938 to January 1941, inclusive.

[14] Does not include well drilling or rig building.

[15] Average weekly earnings, hourly earnings, and hours not comparable with figures published in pamphlets prior to January 1938 as they now exclude corporation officers, executives, and other employees whose duties are mainly supervisory.

[16] Retail-trade indexes adjusted to 1935 Census and public-utility indexes to 1937 Census. Not comparable to indexes published in pamphlets prior to January 1940 or in Monthly Labor Review prior to April 1940, with but one exception, retail furniture, which has been revised since publication of July 1940 pamphlet back to January 1936. Comparable series for earlier months available upon request.

[17] Covers street railways and trolley and motorbus operations of subsidiary, affiliated, and successor companies; formerly "Electric-railroad and motorbus operation and maintenance."

[18] Indexes adjusted to 1933 Census. Comparable series in November 1934 and subsequent issues of "Employment and Pay Rolls."

[19] Cash payments only; additional value of board, room, and tips cannot be computed.

[20] Indexes of employment and pay rolls not available; percentage changes from preceding month substituted.

[21] See note 18 in table 9 in the July 1941 issue of "Employment and Pay Rolls" for revised average weekly earnings in the brokerage industry from January 1939 to January 1941.

[22] Not available.

[23] Based on estimates prepared by the United States Maritime Commission covering employment on steam and motor merchant vessels of 1,000 gross tons or over in deep-sea trades only. Pay-roll indexes not available. Percentage changes from preceding month substituted.

[24] Preliminary; source—Interstate Commerce Commission.

TABLE 3.—*Indexes of Employment and Pay Rolls in 55 Additional Manufacturing Industries*

[12-month average 1939=100]

Industry	Employment			Pay rolls		
	Apr. 1942	Mar. 1942	Feb. 1942	Apr. 1942	Mar. 1942	Feb. 1942
Iron and steel group:						
Metal doors and shutters	133.2	137.5	138.3	195.6	202.0	198.8
Firearms	(1)	(1)	(1)	(1)	(1)	(1)
Screw-machine products	288.5	242.5	240.2	470.1	391.1	375.1
Wire drawing	138.7	138.9	139.1	185.7	181.7	180.9
Wrought pipe not made in rolling mills	175.5	161.6	159.3	273.7	242.2	229.1
Steel barrels, kegs, and drums [2]	138.2	145.2	144.5	207.8	221.2	217.5
Machinery group:						
Machine tool accessories	(1)	(1)	(1)	(1)	(1)	(1)
Pumps	254.3	244.3	231.4	471.5	449.5	413.9
Refrigerators and refrigerating apparatus	110.6	112.5	112.6	151.8	152.4	149.0
Sewing machines	139.4	139.2	137.8	239.0	250.3	239.3
Washing machines, wringers, and driers	108.3	107.6	116.4	153.3	151.7	165.1
Transportation equipment group:						
Motorcycles, bicycles, and parts	128.0	145.7	144.6	185.4	205.2	199.6
Nonferrous metals group:						
Sheet-metal work	152.1	149.8	147.3	220.6	215.3	208.1
Smelting and refining of scrap metal	167.5	164.6	158.1	230.2	219.3	202.0
Lumber group:						
Caskets and morticians' goods	99.4	102.5	102.9	123.2	129.0	127.1
Wood preserving	117.1	116.9	114.6	169.1	163.4	158.3
Wood turned and shaped	113.2	118.6	115.8	151.5	157.7	151.6
Wooden boxes, other than cigar	124.0	125.7	126.8	178.7	176.5	173.8
Mattresses and bedsprings	122.1	118.5	115.6	169.6	152.0	141.6
Stone, clay, and glass products group:						
Abrasive wheels	201.3	197.9	195.5	290.1	277.2	264.7
Asbestos products	134.7	134.5	134.8	189.3	184.4	183.7
Lime	118.6	117.3	116.3	164.8	160.4	157.1
Gypsum	110.6	108.7	110.5	134.3	135.7	131.2
Glass products made from purchased glass	125.5	128.9	134.2	150.0	155.5	159.3
Wallboard and plaster, except gypsum	125.3	127.5	129.2	153.5	142.1	155.8
Textiles:						
Textile bags	123.6	129.8	136.2	145.4	153.4	164.3
Cordage and twine [2]	142.4	139.3	140.0	201.2	194.5	194.5
Curtains, draperies, and bedspreads	103.5	103.7	94.7	144.4	142.1	127.0
Housefurnishings, other	120.8	115.3	109.1	152.4	143.1	130.8
Jute goods, except felt	117.6	116.9	128.0	152.8	159.8	184.4
Handkerchiefs	95.4	97.0	96.3	126.3	127.0	127.9
Leather group:						
Boot and shoe cut stock and findings	102.3	108.2	106.6	133.2	138.7	139.5
Leather gloves and mittens	144.0	141.5	136.7	189.1	185.2	172.9
Trunks and suitcases	169.4	176.1	171.8	199.7	200.6	189.8
Food group:						
Cereal preparations	114.2	120.7	118.1	152.3	161.0	147.0
Condensed and evaporated milk	137.2	133.4	132.2	170.2	161.4	157.4
Feeds, prepared	114.2	117.9	119.7	143.7	144.4	148.0
Paper and printing group:						
Paper bags	131.9	130.4	131.9	168.7	172.9	172.1
Envelopes	118.5	117.6	120.0	137.7	135.5	136.3
Paper goods, not elsewhere classified	123.9	124.2	122.5	147.0	147.1	145.3
Bookbinding	107.7	109.2	109.5	141.4	143.3	141.9
Lithographing	96.0	98.1	99.0	106.3	107.9	106.1
Chemical, petroleum, and coal products:						
Ammunition	(1)	(1)	(1)	(1)	(1)	(1)
Compressed and liquefied gases	155.7	154.4	151.1	208.8	203.4	200.4
Perfumes and cosmetics	102.2	100.8	99.6	117.4	116.1	114.4
Coke-oven products	123.4	122.0	121.4	157.9	159.7	158.5
Paving materials	88.3	88.1	81.4	116.1	113.3	106.0
Roofing materials	122.5	123.3	119.6	157.0	150.9	148.3
Miscellaneous group:						
Chemical fire extinguishers	(1)	(1)	(1)	(1)	(1)	(1)
Buttons	122.0	122.2	121.1	173.4	171.3	162.6
Instruments—professional, scientific, and commercial	(1)	(1)	(1)	(1)	(1)	(1)
Optical goods	(1)	(1)	(1)	(1)	(1)	(1)
Photographic apparatus	130.9	131.0	130.5	177.9	175.7	177.0
Pianos, organs, and parts	100.4	108.1	114.3	123.6	127.6	133.7
Toys, games, and playground equipment	121.7	122.4	115.1	157.9	157.7	143.2

[1] Not available for publication separately.

[2] Indexes from January 1941 to January 1942, inclusive, have been revised as follows:

	1941												1942
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Employment	114.1	111.7	102.8	112.4	123.7	130.8	135.9	138.5	140.8	144.9	144.5	140.6	143.4
Pay rolls	131.0	128.3	120.3	138.8	159.6	174.4	169.0	179.4	188.2	191.9	183.6	197.8	198.8

[3] January 1942 employment index revised to 139.8.

TABLE 4.—*Indexes of Employment and Pay Rolls in Selected Manufacturing [1] and Nonmanufacturing [2] Industries, April 1941 to April 1942*

Industry	1941										1942			
	Av.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr
Manufacturing	**Employment**													
All industries	127.7	122.6	124.9	127.9	130.6	133.1	135.2	135.4	134.8	134.2	132.5	133.8	135.0	136.1
Durable goods [3]	134.0	127.7	131.3	135.1	137.6	138.7	142.1	144.0	144.6	144.2	143.3	145.1	147.4	149.8
Nondurable goods [4]	121.6	117.8	118.8	121.1	123.9	127.7	128.7	127.3	125.4	124.8	122.1	123.0	123.2	123.0
Nonmanufacturing														
Anthracite mining [5]	49.7	48.7	48.6	49.2	49.3	50.0	50.0	50.3	50.2	49.1	49.0	48.8	48.4	47.9
Bituminous-coal mining [5]	86.2	23.5	87.9	88.1	90.3	92.6	94.2	95.3	95.1	95.5	95.1	94.5	93.8	93.3
Metalliferous mining [6]	77.6	77.2	77.1	78.9	79.0	79.9	79.4	79.7	79.5	80.2	80.7	81.0	81.9	82.5
Quarrying and nonmetallic mining	49.8	48.2	51.0	51.9	52.7	53.9	54.2	54.1	52.6	50.9	46.8	46.7	47.7	50.4
Crude-petroleum production	61.0	60.1	60.3	61.5	62.1	62.2	61.8	61.6	60.9	61.1	61.3	60.6	59.7	59.1
Telephone and telegraph [7]	86.3	83.2	84.6	86.3	88.3	89.6	90.3	90.6	90.1	90.0	90.4	90.3	90.5	91.0
Electric light and power [7]	92.7	91.3	92.2	93.5	94.6	95.2	94.9	94.1	93.4	93.1	92.0	90.5	89.6	89.2
Street railways and busses [7 8]	69.3	68.3	68.9	69.1	69.5	69.7	70.3	70.3	70.2	70.6	70.4	70.7	71.2	72.5
Wholesale trade	94.0	92.4	92.2	93.8	94.2	95.8	95.6	96.3	96.3	96.3	94.9	94.3	93.9	92.4
Retail trade [7]	98.0	97.8	96.1	97.8	96.7	96.9	100.0	101.0	103.0	113.0	95.4	94.0	94.4	93.9
Year-round hotels [6]	95.0	95.2	96.3	95.0	94.5	94.5	95.7	96.2	96.1	95.3	94.2	94.1	93.5	95.0
Laundries [6]	108.5	104.9	108.3	112.0	115.8	114.6	113.0	111.2	108.9	108.4	108 8	107.6	107.9	110.2
Dyeing and cleaning [5]	115.1	117.2	120.6	122.7	121.7	118.9	121.5	121.2	117.2	113.3	109.8	109.5	113.8	121.2
Manufacturing	**Pay rolls**													
All industries	148.8	134.7	144.1	152.2	152.7	158.1	162.6	167.0	165.4	169.9	173.5	178.3	182.8	186.6
Durable goods [3]	167.8	149.9	163.1	173.9	172.2	177.6	183.3	191.4	190.3	195.4	204.3	210.6	217.2	223.9
Nondurable goods [4]	127.6	117.7	122.9	127.9	130.7	136.3	139.5	139.6	137.4	141.3	139.0	142.1	144.3	144.9
Nonmanufacturing														
Anthracite mining [5]	41.4	24.3	33.4	51.2	34.8	51.1	49.6	49.2	41.8	35.9	39.4	49.6	50.9	44.7
Bituminous-coal mining [5]	99.6	15.5	103.4	107.2	105.4	117.3	115.5	122.6	116.4	119.9	117.1	118.2	116.9	118.4
Metalliferous mining [6]	81.9	78.9	81.5	85.3	79.3	85.4	85.9	88.3	89.8	93.7	94.3	98.4	99.1	97.0
Quarrying and nonmetallic mining	51.8	47.0	53.2	55.7	55.5	59.3	60.5	61.5	57.5	55.8	48.9	52.0	54.4	57.9
Crude-petroleum production	60.5	57.8	58.6	59.9	61.4	61.5	64.4	64.4	64:2	64.6	64.8	64.8	62.6	62.8
Telephone and telegraph [7]	112.7	107.3	110.5	113.0	115.7	116.4	117.3	117.0	118.3	122.9	120.9	120.9	121.8	122.0
Electric light and power [7]	111.2	107.6	109.6	111.4	113.5	115.1	115.0	115.7	115.2	115.2	114.6	113.7	113.5	113.6
Street railways and busses [7 8]	75.4	72.0	72.7	76.2	75.8	78.6	78.1	78.4	78.5	80.0	80.5	83.7	84.7	84.5
Wholesale trade	87.1	83.4	84.6	88.4	88.0	89.8	90.9	92.0	91.6	92.8	91.8	93.7	93.9	92.0
Retail trade [7]	93.4	91.7	91.5	95.2	94.0	94.0	95.8	97.3	98.5	107.8	94.6	93.9	93.7	93.2
Year-round hotels [6]	88.5	87.1	87.9	87.4	87.6	88.2	90.0	91.9	93.2	93.3	91.5	92.6	91.6	93.5
Laundries [6]	99.3	95.8	98.7	102.5	106.7	104.7	105.2	103.4	101.9	102.6	103.8	102.5	104.3	108.4
Dyeing and cleaning [5]	90.4	97.8	96.1	98.4	96.4	92.1	99.5	98.5	93.0	88.6	86.5	85.6	92.7	105.6

[1] 3-year average 1923–25=100—adjusted to preliminary 1939 Census of Manufactures. See tables 9, 10, and 11 of December 1940 "Employment and Pay Rolls" for comparable figures back to January 1919 for "all manufacturing" and January 1923 for "durable goods" and "nondurable goods."

[2] 12-month average for 1929=100. Comparable indexes for wholesale trade, quarrying, metal mining, and crude-petroleum production are in November 1934 and subsequent issues of "Employment and Pay Rolls" or in February 1935 and subsequent issues of Monthly Labor Review. For other nonmanufacturing indexes see notes 5, 6, and 7.

[3] Includes: Iron and steel, machinery, transportation equipment, nonferrous metals, lumber and allied products, and stone, clay, and glass products.

[4] Includes: Textiles and their products, leather and its manufactures, food and kindred products, tobacco manufactures, paper and printing, chemicals and allied products, products of petroleum and coal, rubber products, and a number of miscellaneous industries not included in other groups.

[5] Indexes have been adjusted to the 1935 Census. Comparable series from January 1929 forward are presented in January 1938 and subsequent issues of the pamphlet. See also table 7 of October 1940 pamphlet for revised figures for anthracite mining, February to September 1940.

[6] See table 7 of February 1941 pamphlet for revised indexes January 1938 to January 1941.

[7] Retail-trade indexes adjusted to 1935 Census and public utility indexes to 1937 Census. Not comparable with indexes published in "Employment and Pay Rolls" pamphlets prior to January 1940 or in Monthly Labor Review prior to April 1940. Comparable series January 1929 to December 1939 available in mimeographed form.

[8] Covers street railways and trolley and motorbus operations of subsidiary, affiliated, and successor companies.

REVISED WPA ESTIMATES OF UNEMPLOYMENT

REVISED estimates of the civilian labor force, employment, and unemployment, from the sample Monthly Report of Unemployment, have been released by the Work Projects Administration and are shown in the table. The revisions have left the estimates of unemployment practically unchanged, but have served to increase both the level of employment and the size of the labor force. The regular monthly presentation of the WPA estimates, together with the detailed age break-downs, will be continued with the next issue.

Estimated Civilian Labor Force, Employment, and Unemployment, by Months, April 1940–May 1942

Month	Estimated number (millions of persons)								
	1942			1941			1940		
	Labor force	Employed	Unemployed[1]	Labor force	Employed	Unemployed[1]	Labor force	Employed	Unemployed[1]
January	53.2	48.9	4.3	53.0	45.3	7.7	(2)	(2)	(2)
February	53.4	49.4	4.0	52.9	45.7	7.2	(2)	(2)	(2)
March	54.5	50.9	3.6	52.7	45.8	6.9	(2)	(2)	(2)
April	53.7	50.7	3.0	53.5	46.8	6.7	53.9	45.1	8.8
May	54.2	51.6	2.6	54.2	48.5	5.7	54.7	46.3	8.4
June	------	------	------	56.2	50.2	6.0	56.2	47.6	8.6
July	------	------	------	56.6	50.9	5.7	56.9	47.6	9.3
August	------	------	------	56.4	51.0	5.4	56.6	47.7	8.9
September	------	------	------	54.8	50.3	4.5	54.9	47.9	7.0
October	------	------	------	54.1	50.2	3.9	54.4	47.0	7.4
November	------	------	------	54.1	50.2	3.9	53.7	46.3	7.4
December	------	------	------	54.0	50.2	3.8	53.4	46.3	7.1

[1] Includes persons on public emergency projects.
[2] Not available.

Recent Publications of Labor Interest

JULY 1942

Agriculture and Agricultural Labor

Agricultural-industrial relations. Washington, U. S. Department of Agriculture, April 1942. 10 pp., charts. (Post-war plans, No. 3.)

This issue of the series on post-war plans emphasizes the dependence of farm prosperity on the capacity of the city population, and especially that of industrial workers, to buy the products of the farms. It is stated that if better farm returns are to continue after the war, ways will have to be worked out for continued maintenance of industrial employment and wages at high levels.

Annual report of Division of Farm Population and Rural Welfare, U. S. Bureau of Agricultural Economics, July 1, 1940–June 30, 1941. Washington, 1941. 39 pp.; mimeographed. (In Farm Population and Rural Life Activities, October 1941.)

Reviews studies made by the Division on farm labor, levels of living, subsistence homesteads, migration of farm population, and other topics.

Report of Administrator of Farm Security Administration [for fiscal year ended June 30], 1941. Washington, 1942. 56 pp.

Contains data on the various aspects of the farm-security program (described in the Monthly Labor Review, issues of December 1941 and February 1942).

A statement of the role of low-income farm families in the war effort. Presented by James G. Maddox, Director, Rural Rehabilitation Division, Farm Security Administration, before House Committee Investigating National Defense Migration. Washington, U. S. Farm Security Administration, 1942. 33 pp., charts; mimeographed.

Somewhat more than 2 million farm operators, including about half a million sharecroppers, are classed as low-income farmers. It is stated that about half of the available manpower of the low-income farm families is forced into idleness because of lack of resources or resource organization. Estimates are made of the possible additional war-food production if arrangements could be made for enabling them to maintain their farm operations on a more efficient basis.

Seasonal agricultural labor demand in the State of Washington during 1941. [Olympia?], Office of Unemployment Compensation and Placement, 1941. 30 pp.; mimeographed.

A tabulation showing seasonal demands, by employment-service branch office, county, crop, and type of work, giving estimated acreage, period of demand for labor, amount of peak demand, and number of local residents available for meeting the demand. There are discussions of hiring methods, living facilities, transportation problems, and effects of war conditions on the supply of agricultural labor.

Agricultural labor in a Yunnan village. By Fei Hsiao-Tung. (In Nankai Social and Economic Quarterly, Nankai Institute of Economics, Shapingpa, Chungking, China, January 1941, pp. 146–168.)

The village studied, Luts'un, was selected as being representative of rural communities where agriculture—or, more precisely, rice and broad-bean cultivation—is the main industry of the people. The article deals with the work calendar; labor requirements for different operations; labor supply, with particular reference to its decrease; drain of rural labor; petty owners and immobile labor; farm income; the leisure class; and other matters.

EDITOR'S NOTE.—The Bureau of Labor Statistics does not distribute the publications to which reference is made in this list, except those issued by the Bureau itself. For all others, please write to the respective publishing agencies mentioned.

Child Labor and Child Welfare

Child workers in wartime. By Gertrude Folks Zimand. New York, National Child Labor Committee, 1942. 23 pp. (Publication No. 386.)
Discusses the trend of child labor during 1941 and 1942 under the stimulus of war production.

A children's charter in wartime. Washington, U. S. Children's Bureau, 1942. 4 pp. (Publication No. 283; Children in wartime No. 2.)
The charter was adopted in March 1942 by the Children's Bureau Commission on Children in Wartime. It calls upon citizens to unite to "guard children from injury in danger zones; protect children from neglect, exploitation, and undue strain in defense areas; strengthen the home life of children whose parents are mobilized for war or war production; conserve, equip, and free children of every race and creed to take part in democracy."

Child health in relation to employment. (In Industrial Bulletin, New York Department of Labor, Albany, January 1942, pp. 24–26, bibliography; also reprinted.)

Proceedings of Conference on Day Care of Children of Working Mothers, with special reference to defense areas, held in Washington, D. C., July 31 and August 1, 1941. Washington, U. S. Children's Bureau, 1942. 84 pp. (Bureau publication No. 281.)
Contains a "statement of principles" recommending measures which should be taken for the safeguarding of children of working mothers in defense areas.

Occupational hazards to young workers, Report No. 1: The explosives-manufacturing industries. Washington, U. S. Children's Bureau, 1942. 19 pp. (Publication No. 273.)
The report covers the nature and hazards of the explosives industries, industrial-injury rates, experience under workmen's compensation, legal minimum-age standards, and industry policies.

Consumer Problems

Consumer movement, 1942. By Esther Cole Franklin. Washington, American Association of University Women, 1942. 34 pp., bibliography; mimeographed. (Contemporary America, Vol. III, No. 4.)
Gives information on consumer testing and rating agencies, cooperative associations, and Government measures and agencies to protect consumers' interests, as well as on the activities of various private organizations in the consumer field.

The rationing of consumer goods. By Victor Abramson and Charles F. Phillips. (In Journal of Business of University of Chicago, January 1942, pp. 1–20.)
A discussion of the conditions under which rationing should be utilized, and of methods appropriate to a democratic society. Compulsory governmental rationing, it is pointed out, may be supplemented by voluntary rationing, handled by distributors, manufacturers, and consumers themselves under public supervision. Rationing becomes increasingly desirable for controlling distribution during a progressive reduction of the supply of basic commodities necessary for maintaining proper standards of living; as taxation, governmental borrowing, restricted consumer credits, or higher prices may lower the general level of consumption but cannot insure an equitable distribution of commodities required by those with small earnings as well as by those with large incomes.

Stretching your dollar in wartime. By Ruth Brindze. New York, Vanguard Press, 1942. 197 pp., charts.
Detailed information on how and what to buy in order to get the most of the purchaser's dollar. Food, clothes, and household goods are covered, item by item; and there are also chapters on maintenance of the home and the automobile.

Annual report of Office of Bituminous Coal Consumers' Counsel, for period July 1, 1940–October 31, 1941. Washington, 1941. 55 pp., charts.
Describes the organization and functioning of the Counsel and the year's activities in the interest of consumers.

Edible fats and oils—conservation in the distribution to customers, 1917–18. By Irving Bernstein. Washington, U. S. Bureau of Labor Statistics, Division of Historical Studies of Wartime Problems, 1942. 30 pp.; mimeographed.

Instalment plan—a selected list of references. Compiled by Anne L. Baden. Washington, U. S. Library of Congress, December 15, 1941. 41 pp.; mimeographed.

Cooperative Movement

Consumer cooperatives in America. By Wallace J. Campbell. New York, Cooperative League of the U. S. A., [1942]. 33 pp., illus.

Report of Administrator of Rural Electrification Administration, [fiscal year] 1941. Washington, 1941. 26 pp.

As a large part of the work of the Rural Electrification Administration has to do with loans to cooperative associations, there is much material relating to such associations in this report—State regulation of electricity cooperatives (only seven States include cooperatives in their regulation of public utilities), self-help construction of power lines by farmers, taxation of power cooperatives, and effect of associations in raising the standard and comfort of living on farms.

Fishery cooperative associations in relation to conservation and orderly marketing. By Ralph Russell. Washington, U. S. Department of the Interior, Fish and Wild Life Service, 1941. 5 pp. (Reprinted from Transactions of American Fisheries Society, Washington, D. C., Vol. 70, 1940.)

China builds for democracy! A story of cooperative industry. By Nym Wales. New York, Modern Age Books, Inc., 1941. xv, 310 pp., bibliography, illus.

A detailed account of the origins, development, and present status of the Chinese industrial cooperatives which are contributing so much to the production of war-needed articles in that country. Included are chapters on cooperative medicine in Chinese villages, skilled labor and refugee relief, and the future possibilities of the movement.

The cooperative movement [in Great Britain] since the outbreak of war. By D. B. Halpern. (In Oxford Institute of Statistics Bulletin, October 11, 1941, pp. 318–324.)

Notes that about 43 percent of the total population of Great Britain had one or more family members trading with cooperative associations in 1940. Gives statistics on membership, volume of business in the aggregate and per family, and on cooperative wholesaling throughout 1940. Concludes that there have been no spectacular changes as a result of the war.

Personnel management in farmers' cooperatives. By R. G. Beers. Washington, U. S. Farm Credit Administration, 1941. 35 pp. (Circular No. C–123.)

Covers such subjects as selection, training, and pay of employees, measurement of efficiency, and various working conditions (including vacations and sick leave) and welfare measures. Intended for farmers' cooperatives, but is equally valuable for consumers' cooperative associations.

Cost and Standards of Living

The changing relation of consumer income and expenditure. By R. B. Bangs. (In Survey of Current Business, U. S. Department of Commerce, Washington, April 1942, pp. 8–12; charts.)

An analysis of the trends of disposable income, consumption expenditure, and savings by individuals, from January 1940 to February 1942. It is pointed out that the rapid growth in the rate of savings is an encouraging sign as tending to narrow the inflationary gap, but complete closure, it is stated, will require supplementary measures.

Family income and expenditures, Southeast Region—Part 1, Family income. By Dorothy S. Brady and others. Washington, U. S. Bureau of Home Economics, 1941. 208 pp., charts. (Consumer purchases study, farm series; U. S. Department of Agriculture miscellaneous publication No. 462.)

Typical net monthly bills as of January 1, 1942, for electric service to residential, commercial, and industrial consumers, cities of 50,000 population and more. Washington, Federal Power Commission, 1942. 48 pp., charts. (FPC R–22.)

Typical gas bills, Middle Atlantic States—New Jersey, New York, and Pennsylvania —March 1, 1941. Letter from chairman of Federal Power Commission transmitting in response to Senate resolution 177 a statement relative to prices of gas to residential customers. Washington, 1942. 48 pp. (Senate doc. No. 122, part 3, 77th Cong., 2d sess.)

Rates charged for gas service to residential customers in all communities in the Middle Atlantic States having such service on March 1, 1941, presented by community and State, and by purpose for which gas was used.

Similar reports for other geographical divisions of the United States, and one for cities of 50,000 population and over, have also been prepared by the Federal Power Commission and published as Senate documents.

The Toledo [Ohio] plan for graded rents. By Donald Robinson. Chicago, National Association of Housing Officials, Management Division, 1941. 14 pp., loose leaf; mimeographed. (Notes on management practice, No. 4.)

The writer, who is the director of the Toledo Metropolitan Housing Authority, shows the basis for determining rent-paying capacity of tenants and the final rents established.

Economic and Social Problems

The coming showdown. By Carl Dreher. Boston, Little, Brown & Co., 1942. 419 pp.

The author discusses the parts played by businessmen and their employees in the first World War and in the present war. His point of view regarding labor organizations and their participation in the war program is in general sypmathetic. He expresses the view that far-reaching changes are inevitable in the field of the management of enterprise, and states that America's job is to "reconcile collectivism and democracy."

Consumer spending, inflation and the wage earner in the United States. By Otto Nathan and Milton Fried. (In International Labor Review, Montreal, February 1942, pp. 125–141.)

The writers describe inflation as arising from price increases which cannot lead to an increase in production sufficient to satisfy demand and can serve only to ration scarce goods by making them unavailable to those who cannot pay the higher price. The article was written before the formal participation of the United States in the war but it deals largely with basic considerations applicable to a war economy. Various proposals for preventing inflation are criticized and it is held that the preferable instruments of control are price fixing and rationing in the distribution of consumers' goods as well as raw materials and capital goods.

Distributive justice: The right and wrong of our present distribution of wealth. By Rt. Rev. John A. Ryan. New York, Macmillan Co., 1942. 357 pp. 3d ed.

While the rights and obligations of landowners, capitalists, business men, and laborers constitute the major subject of this volume, the author also proposes reforms which, in his judgment, would eliminate the main defects of the existing system and bring about a greater measure of justice.

Earning a living in the world of tomorrow—a study of present trends and the long range outlook. Los Angeles, Industrial Survey Associates, 1941. 58 and (appendix) 21 pp.; mimeographed.

Based on the assumption that regardless of the extent of postwar depression, inflation, or Government control, and notwithstanding the effects of future labor displacement resulting from technological changes or refugee immigration, economic life will continue. It seems worthwhile to the authors, therefore, to try to indicate what will probably happen to jobs in the after-the-war world.

Prosperity and depression: A theoretical analysis of cyclical movement. By Gottfried Haberler. Geneva, League of Nations, 1941. 532 pp. 3d ed.

This third edition of a study originally published by the League of Nations in 1937 contains an additional section devoted largely to a discussion of the more recent interpretations and applications of Mr. Keynes' theories of the relationship of investment, consumption, and employment, particularly his theory of the "multiplier." There is an extensive discussion and criticism of theories relating to the bearing of wage and price changes on employment.

War expenditures and national production. By Milton Gilbert. (In Survey of Current Business, U. S. Department of Commerce, Washington, March 1942, pp. 9–16; charts.)

Attention is called to the confusion that has resulted from inappropriate comparisons of war expenditures and national income. It is pointed out that war expenditures are in reality a part not of national income but of gross national expenditure at market prices. Estimates are made of the net increase in projected war expenditures and of the effects of the increase in reducing consumers' purchases of durable goods and of nondurable goods in the fiscal year 1943. These estimates of the necessary sacrifices by consumers are not so large as some estimates that have been made. The reductions of goods and services available to consumers, combined with the high levels of income, create an inflationary danger that "should be sufficiently impressive without any exaggeration of the magnitudes involved."

Employment and Unemployment

Occupational outlook and the war. By A. F. Hinrichs, Acting Commissioner of Labor Statistics, U. S. Department of Labor. (In Occupations, the Vocational Guidance Magazine, New York, April 1942, pp. 499–505.)

The article discusses the employment-forecasting work of the Occupational Outlook Section of the U. S. Bureau of Labor Statistics, and summarizes effects of the war on employment in 1941 and probable effects in 1942.

The coming crisis in manpower. By Maxwell S. Stewart. New York, Public Affairs Committee, Inc., 1942. 32 pp., charts. (Public affairs pamphlet No. 68.)

Estimates are made of the extended need for labor and the available labor resources. There is a discussion of possible methods for bringing additional numbers into the labor market and for increasing the efficiency of utilizing labor. The possibilities and limitations of longer hours of work are discussed, and the importance of maintaining essential safeguards, such as those affecting health, efficiency, and morale, is emphasized.

Priorities unemployment. (In International Juridical Association Monthly Bulletin, New York, December 1941, pp. 57, 61–68.)

There is an account of the extent and nature of unemployment resulting from the control of materials, commodities, and facilities for war production, but the article deals mainly with the effects of priorities unemployment on workers, the efforts of government agencies to deal with the problem, and the requisites of what is viewed as a sound program.

Employment conditions in Pennsylvania industries. Harrisburg, Department of Labor and Industry, Bureau of Research and Information, 1941. Various paging; mimeographed.

Part I consists of estimates of total employment, pay rolls, and man-hours for 65 industries or industry groups, by month, from 1935 to 1940. Part II consists of indexes of the data of Part I based on the average of the years 1935–39. The third part covers the same industries and the same period, by month, and consists of figures of average weekly earnings, average hourly earnings, and average weekly hours. The three parts are in separate volumes. It is stated that the statistical series are maintained currently.

Employment problems of college students. By Samuel Clayton Newman. Washington, American Council on Public Affairs, 1942. 158 pp.

A study of self-help employment among college students, including vacation employment and school-year employment.

Statistics relating to labor supply [in Canada] under war conditions. Ottawa, Dominion Bureau of Statistics, 1941. 16 pp.; mimeographed.

Includes figures from the national registration of manpower in Canada in August 1940.

Health and Industrial Hygiene

Annual report of Surgeon General of U. S. Public Health Service, for the fiscal year 1941. Washington, 1941. 211 pp.

A section of the report summarizes the work of the Division of Industrial Hygiene, covering field investigations and laboratory research on various toxic substances, and the consultation services of the Division, which has been desig-

nated as the coordinating agency for all national-defense industrial-hygiene activities.

Proceedings of fourth annual congress on industrial health, Chicago, January 12–13, 1942. Chicago, American Medical Association, Council on Industrial Health, 1942. 42 pp., diagrams, illus.

The subjects discussed at the congress included medical aspects of vocational and industrial training, a dental program for industry, health education for industrial workers, the field of industrial opthalmology, conservation of hearing in industry, and indiscriminate administration of vitamins to workers in industry.

Cadmium poisoning. (In Public Health Reports, U. S. Public Health Service, Washington, April 24, 1942, pp. 601–612; bibliography.)

The estimated number of workers potentially exposed to cadmium in the United States is over 30,000. The report lists the occupations in which there is exposure and gives the symptoms of cadmium poisoning and preventive measures.

Control of health hazards incidental to spray painting. Concord, New Hampshire State Board of Health, 1941. 6 pp., diagrams.

Silicosis and other health problems of metal miners. By Waldemar C. Dreesen, M. D., Richard T. Page, Hugh P. Brinton. (In American Journal of Public Health and the Nation's Health, Albany, N. Y., February 1942, pp. 142–150; charts.)

The report is based on a study in 1939 of three representative metal mines in the State of Utah covering 783 metal-mine workers and the environmental factors in the mines which might have a bearing on the health of the workers. The principal occupational disease found among the miners was silicosis, and the problem of silicosis was found to be most serious for those men working at the face. There was a lead hazard also in these mines, but no significant nonoccupational diseases were found.

Summary report by Ministry of Health, Great Britain, for period from April 1, 1939, to March 31, 1941. London, 1942. 52 pp. (Cmd. 6340.)

The public-health situation in Great Britain is reviewed for the 2-year period, showing the incidence of specific diseases, and data are given covering maternal and infant mortality and the welfare of young children, nursing services, public assistance, housing, national health insurance and contributory pensions, and war emergency organization.

Housing

Housing for defense. By R. J. Thomas. Detroit, U. A. W.-C. I. O., International Education Department, 1942. 47 pp., diagrams, illus.

Deals with defense housing, existing housing conditions, housing administration, and related subjects.

A method for analyzing the economic distribution of shelter. Cambridge, Massachusetts Institute of Technology, Albert Farwell Bemis Foundation, 1940. 25 pp.

A graphic presentation for analyzing the shelter-purchasing power of a population based on any specific income distribution.

Annual report of State Housing Authority of New Jersey. [Newark, Secretary to the Authority], 1941. 32 pp., map, plan, illus.

The rehabilitation of Southwest Washington as a war housing measure. By Arthur Goodwillie. Washington, U. S. Home Owners' Loan Corp., 1942. 39 pp., maps, plans, illus.

Plan for use of existing community assets and providing war and post-war housing.

Bibliography on community activities and facilities in housing projects. By Judith Hodson. New York, Citizens' Housing Council of New York, Inc. 1942. 18 pp.; mimeographed.

Income

National income and its composition, 1919–1938. By Simon Kuznets. New York, National Bureau of Economic Research, 1941. 2 vols. (Publication No. 40.)

These volumes contain important revisions and extensions of the earlier studies of income made under the auspices of the National Bureau of Economic Research. The two main series of estimates cover the national income (defined as the net value of all economic goods produced by the nation) and aggregate payments to individuals. Estimates are also made for consumers' outlay. The national totals are given in current prices and in 1929 prices, the latter being in effect estimates of aggregate production and consumption. Wages are shown separately for several main types of employment for the entire period covered. The number of employees or number engaged, as well as the amount of income or of income payments, is given for the various branches of industry and types of income. The concepts adopted and the methods used are described in detail. Comparisons are made with other estimates, notably those of the U. S. Department of Commerce. A detailed tabular index is provided.

Uses of national income in peace and war. By Simon Kuznets. New York, National Bureau of Economic Research, 1942. 42 pp. (Occasional paper 6.)

It is stated that net capital formation has constituted not more than 15 percent of the national income. Various plans for war outlay call for a diversion of 40 to 50 percent of national income from immediate consumption by individuals and families. It is estimated that if one-half of the national income is diverted to war purposes, consumers' outlay per unit will have to be reduced about 16 percent below the average of the years 1919 to 1928. The bulk of reduction in consumers' outlay will have to be borne by the two-thirds of the population with larger incomes, the writer holds, for at least a third of American families live so close to the subsistence level that they cannot spend much less. The reduced consumption must affect in varying degrees the different types of consumer goods and services.

Income payments to residents of California by counties, 1935–1941. San Francisco, California State Chamber of Commerce, Research Department, April 1942. 26 pp., map, charts.

The estimates of county income payments were prepared by use of county statistics tabulated from State income-tax returns as the principal basis, supplemented by county data on retail trade, county and regional data on taxable retail sales, and intercensal estimates of population.

Industrial Accidents and Workmen's Compensation

Discussion of industrial accidents and diseases: 1941 convention of International Association of Industrial Accident Boards and Commissions, Winnipeg, Manitoba, [September 8–11, 1941]. Washington, U. S. Department of Labor, Division of Labor Standards, 1942. 129 pp. (Bull. No. 53.)

Fatal industrial accidents in Canada, 1941, analyzed according to industries, localities, and months. (In Labor Gazette, Department of Labor, Ottawa, March 1942, pp. 366–377.)

Coal-mine explosions and coal- and metal-mine fires in the United States during fiscal year ended June 30, 1941. By D. Harrington and W. J. Fene. Washington, U. S. Bureau of Mines, 1942. 26 pp., chart. (Information circular 7208.)

More deaths from mine explosions occurred in the two years ending June 30, 1941, than in the preceding six years. The reasons for the increase were found to be laxity in the enforcement of State mining laws and failure on the part of both workers and employers to observe recognized precautionary measures to prevent explosions.

La prevención de accidentes como problema económico. By José Figuerola. (In Boletín de la Unión Panamericana, Washington, April 1942, pp. 215–219.)

In this article the chief of the statistical section of the Argentine Department of Labor discusses the economic value of accident prevention, and gives statistics for Argentina of number and average annual compensation cost of fatal and permanently disabling industrial accidents, and estimated average annual number and cost of temporary disabilities, for the last five years, compared with industrial wages for 1937.

Rules relating to equipment, maintenance and sanitation of foundries and control of dusts, gases and fumes in foundries. Albany, New York Department of Labor, Board of Standards and Appeals, 1941. 39 pp. (Industrial code rule No. 10, effective February 1, 1942.)

Relief workers and workmen's compensation. By Thelma Brook and Harold M. Simon. (In Illinois Law Review, Chicago, March 1942, pp. 773–782.)

Analysis of court decisions concerning the status of relief workers under State workmen's compensation acts, together with a discussion of the problem in Illinois.

Industrial Relations

The adjudication of war labor disputes. By Wayne L. Morse. (In International Juridical Association Monthly Bulletin, New York, April 1942, pp. 105–110.)

Discussion of the background and work of the National War Labor Board by a member of the Board. Some of the major decisions of the Board are analyzed for the purpose of indicating that agency's effort to build up policies and procedures that are clear and fair and yet flexible enough to be workable and to promote maximum production of war materials.

The adjudication of collective labor disputes in Italy. By John Clarke Adams. (In Quarterly Journal of Economics, Cambridge, Mass., May 1942, pp. 456–474.)

A brief description of the Italian system of labor courts is followed by an account of each of the 16 decisions handed down by such courts in matters of collective labor disputes since strikes and lockouts were outlawed in 1926, with a summary and evaluation of the system.

Collective bargaining systems: A study of union-employer responsibilities and problems. By Frank C. Pierson. Washington, American Council on Public Affairs, 1942. 227 pp., bibliography.

My life in industrial relations: Fifty years in the growth of a profession. By Clarence J. Hicks, New York and London, Harper & Bros., 1941. 180 pp.

Personal account of the experiences of a pioneer in industrial-relations activities. It refers to many of the outstanding developments in employer-employee relations during the past 50 years.

Sharing information with employees. By Alexander R. Heron. Stanford University, Calif., Stanford University Press, 1942. 204 pp.

Deals with that phase of industrial relations concerned with informing employees on the operation of an enterprise, the types of information to be given or to be avoided, and examples of both successful and unsuccessful methods of sharing such information.

Occupations

Giving information about occupations. By Gertrude Forrester. Chicago, Science Research Associates, 1941. 64 pp., bibliography. (Guidance plans and methods No. 7.)

Since many of the projects presented in this pamphlet may extend over the entire school period, they encourage the student to progress toward a vocational objective and also provide for a series of choices during the development of his occupational planning.

The aircraft apprentice. By Leslie MacGregor. New York, Pitman Publishing Corp., 1942. 134 pp., diagrams, illus.

The qualifications necessary in an aircraft apprentice and the different types of jobs in the industry are described.

Jobs in the forests of the Pacific Northwest. By Donald Nylen and John Rule. Portland, Oreg., Northwest Regional Council, 1941. 77 pp., bibliography.

Gives an account not only of the opportunities in public and private employment in the forests of the region covered but also of the ways in which ingenious and enterprising youths can make jobs for themselves in forest activities.

Jobs in the machine shop. By Ernest L. Bowman. Chicago, Science Research Associates, 1942. 48 pp., bibliography, illus. (American job series, occupational monograph No. 27.)

Today the machine shop presents a real opportunity for those who are not afraid of work in overalls and who have mechanical ability and the urge to make things by the skillful control of power-driven machinery.

A handbook for industrial nurses. By Marion M. West. London, Edward Arnold & Co., 1941. 134 pp.

The writer discusses the duties and qualifications of an industrial nurse, equipment of a factory emergency hospital, and British legislation dealing with the health and safety of workers.

Patterns of Jewish occupational distribution in the United States and Canada. New York, Jewish Occupational Council, 1940. 31 pp.

Price and Wage Control

The Emergency Price Control Act. (In Law and Contemporary Problems, Vol. IX, No. 1, Durham, N. C., 1942; 177 pp.)

The various main features of price control are examined. Three articles deal specifically with the Emergency Price Control Act. Other articles deal with the background problem of preventing inflation, economic considerations, the control of rents, and the experience of Great Britain in wartime control of prices.

Federal price control, July 1, 1940–February 10, 1942. Washington, U. S. Office of Price Administration, 1942. 127 pp.

Digest of all public announcements made by Office of Price Administration and its predecessors during the period when Federal price-control activities were carried out under Executive orders of the President, prior to passage of the Emergency Price Control Act of 1942.

The legislative history of price control in World War I. By Stella Stewart. Washington, U. S. Bureau of Labor Statistics, 1941. 8 pp.; mimeographed.

Direct price control in Great Britain. By E. R. Hawkins. (In Survey of Current Business, U. S. Department of Commerce, Washington, January 1942, pp. 12–18; charts.)

Wages and prices. Compiled by Robert E. Summers. New York, H. W. Wilson Co., 1942. 219 pp., bibliography. (Reference Shelf, Vol. 15, No. 6.)

The volume brings together material from various sources on price and wage control in the United States and foreign countries.

Frederick Griffin on "fighting inflation." Ottawa, Wartime Prices and Trade Board, 1942. 39 pp. (Price control in Canada, booklet No. 2.)

Discusses the meaning of inflation and the battle against it in Canada.

Production

Preliminary estimates of gross national product [United States], 1929–41. By Milton Gilbert and R. B. Bangs. (In Survey of Current Business, U. S. Department of Commerce, Washington, May 1942, pp. 9–13; charts.)

A study of gross national product as distinguished from net product or national income. The tabulations are made in a manner designed to throw light on various problems of war finance and control of production and consumption under war conditions. Estimates are given, for instance, of the "disposable income of individuals" and the shares going to the purchase of goods and services and to savings. The estimates are described as an analytical tool and should not be used as precise measurements.

Production for victory not profit! By Maurice Edelman. London, Victor Gollancz, Ltd., 1941. 184 pp.

Plea for substituting the motive of public interest for that of personal profit in wartime.

Production [Australia], 1939–40: Part I—Secondary industries. Canberra, Commonwealth Bureau of Census and Statistics, [1941?]. 122 pp. (Bull. No. 34.)

Factory statistics, including number of persons employed and the wage bill, by industry.

Social Security

Social security reserves. By J. S. Parker. Washington, American Council on Public Affairs, 1942. 340 pp.

The history and development of the provisions of the Social Security Act relating to reserves and other aspects of financing and the controversies to which these

provisions gave rise are traced by the author. In addition, there is an account of the experience in various methods of financing by life-insurance companies; fraternal, industrial, and church insurance and pension funds; and European old-age-insurance systems.

Statistical manual of the Social Security Board. Washington, U. S. Social Security Board, 1941. Various paging, charts; mimeographed.

Codification of policies and standards of statistical procedure and statistical presentation used by the Social Security Board in the compilation and presentation of statistical data.

The war and merchant seamen, I: Unemployment indemnities and compensation for loss of effects in the event of loss of the ship; Detention and family allowances. (In International Labor Review, Montreal, May 1942, pp. 493–511.)

Disertación del Gerente General de la Caja, Dr. Edgardo Rebagliati, en la actuación realizada en el paraninfo del Ministerio de Salud Pública, Trabajo y Previsión Social [Peru], en el Dia de la Salud. (In Informaciones Sociales, Caja Nacional de Seguro Social, Lima, December 1941, pp. 1079–1085.)

After a brief account of the development of social insurance in Peru from August 1936, statistics are given of the operation through October 1941 of the health plan (adopted in 1938) of the National Social Insurance Fund (Caja Nacional de Seguro Social).

El seguro de maternidad en Venezuela. By S. Ruesta. (In Revista de Sanidad y Asistencia Social, Ministerio de Sanidad y Asistencia Social, Caracas, February 1942, pp. 160–196.)

Treatise on provisions for maternity aid in the Venezuelan compulsory social-insurance law of July 24, 1940, text of the law, and discussion of the purpose of the legislation and of its provisions concerning other matters than maternity aid.

O amparo da maternidade pelo seguro social nos paises da America Latina. By Rudolf Aladár Métall. (In Revista do Trabalho, Rio de Janeiro, February 1942, pp. 61–66.)

General statement of the need for maternity aid and of modern tendencies in providing it, with some European background, is followed by an analysis of maternity-aid legislation in Argentina, Chile, Cuba, Peru, and Venezuela.

Wages and Hours of Labor

Handbook of labor statistics, 1941 edition: Vol. II, Wages and wage regulation. Washington, U. S. Bureau of Labor Statistics, 1942. 426 pp. (Bull. No. 694, Vol. II.)

Wage rates in the California airframe industry, 1941. By Louis M. Solomon and N. Arnold Tolles. Washington, U. S. Bureau of Labor Statistics, 1942. 26 pp., charts. (Bull. No. 704.)

Wages and hours in the glove industry, 1941. By Edward B. Morris and Edyth M. Bunn. Washington, U. S. Bureau of Labor Statistics, 1942. 36 pp., charts. (Bull. No. 702.)

Commercial minimum wage scales, hours, and working conditions of subordinate unions of International Printing Pressmen and Assistants' Union of North America, June 15, 1942. Pressmen's Home, Tenn., International Printing Pressmen and Assistants' Union, Service Bureau, [1942?]. 107 pp.

Los salarios de América. México, D. F., Confederación de Trabajadores de América Latina, [1941?]. 20 pp.; processed.

Comparative tables of hourly wages by occupations, retail prices of specified items of food, and purchasing power, per hour of work, for each of these items of food, in United States dollars and in national currency, in the following countries and years: Bolivia, 1936; Argentina, Canada, Colombia, Dominican Republic, Mexico, the United States, and Uruguay, for 1939; and Chile, Costa Rica, Cuba, and Ecuador for 1940.

Wage policy in the defense program. By E. B. McNatt. (In Southern Economic Journal, Chapel Hill, N. C., April 1942, pp. 504–512.)

It is stated that wage policy should serve as a control measure to help in preventing runaway inflation, as a protective measure to help maintain labor's real wage and standard of living, and as an emergency measure to facilitate readjustment after the war. It is held that in the United States wages should not be

tied to cost of living, either as a temporary wartime policy or as a permanent peacetime policy. Wage policy, it is urged, should be formulated by agreement among representatives of labor, industry, and government.

Wartime Conditions and Policies

Labor redistribution for war industry. By P. Waelbroeck. (In International Labor Review, Montreal, April 1942, pp. 367–394.)

Following a statement of the problem, the main points considered are control and direction of the movement of labor, organized redistribution of labor, social problems connected with labor redistribution, and administrative organization.

War demands for trained personnel. New London, Conn., Institute of Women's Professional Relations, 1942. 260 pp.; mimeographed.

Proceedings of conference arranged by Institute of Women's Professional Relations, held in Washington, March 20 and 21, 1942.

The conference considered the question of war demands for qualified personnel in connection with scientific services, health services, home economics, business and law, transportation and communication, education and community agencies, and war personnel needs in the government, and discussed the supply of trained workers in relation to the demands of the total war program.

Economic research in war and reconstruction. New York, National Bureau of Economic Research, [1942]. 77 pp.

Part 1 of the pamphlet consists of the 22d annual report of the director of research of the National Bureau of Economic Research, discussing the work of the bureau with particular reference to the war and to post-war research needs. In the second part, individual staff members review the bureau's researches on specific subjects.

National resources development report for 1942. Washington, U. S. National Resources Planning Board, 1942. 227 pp., charts.

Deals with war and post-war plans and policies. An appendix to the report shows trends in national income, employment, and consumption.

Reference list of national defense publications: A selection of pertinent bulletins and articles prepared by Federal agencies actively engaged in the national defense program. Washington, U. S. Office of Government Reports, Information Service, February 1942. 36 pp.; mimeographed.

References on defense, war, and economic effects of war. Compiled by Gladys A. West. Washington, U. S. Bureau of Foreign and Domestic Commerce, 1941. 28 pp.; mimeographed.

Wartime orders in council affecting labor [in Canada]. Ottawa, Department of Labor, 1942. 53 pp.

Orders affecting labor are grouped by subject, such as industrial relations, wage stabilization, and labor supply.

This is England today. By Allan Nevins. New York, Charles Scribner's Sons, 1941. 164 pp.

A close-range picture of England at war. Considerable attention is devoted to the labor aspects.

Report on occupancy tests of air-raid shelters for factory workers at works of J. & E. Hall, Ltd., Dartford, Kent. London, H. K. Lewis & Co., Ltd., 1939. 29 pp., diagrams.

Details of the shelters, physical tests, and physiological data.

U. S. GOVERNMENT PRINTING OFFICE: 1942